

POLYGRAPHICE:

O R,

*The Arts of Drawing, Engraving,
Etching, Limning, Painting, Ver-
nishing, Japaning, Gilding, &c.*

In Two Volumes.

CONTAINING,

- I. *The Arts of Drawing Men, Women, Landskips, &c.*
- II. *Of Engraving, Etching, and Limning.*
- III. *Of Painting, Washing, Coloring, Gilding.*
- IV. *Of the Original, Advancement and Perfection of Paint-
ing, with the Various Paintings of the Ancients.*
- V. *Of the Arts of Beautifying and Perfuming.*
- VI. *Of the Arts of Dying and Staining.*
- VII. *Of Alchymie, and the Grand Elixir of Philosophers.*
- VIII. *Of the 112 Chymical Arcana of Peter Faber.*
- IX. *Of Chiromantical Signatures.*
- X. *Of Staining and Painting Glass, Enamel and Gems.*
- XI. *Of Vernishing, Japaning, and Gilding.*

The Eighth Edition.

*Enlarged, with above Five Hundred considerable Additions
thro' the whole Work; and the Addition of almost five whole
Books, not in any of the former Impressions: Adorned with
XXV Copper Sculptures, the like never yet Extant.*

By WILLIAM SALMON, M.D.

Non Quot, sed Quales. . R.

*London, Printed for A. and J. Churchill, at the Black Swan
in Paternoster-Row. And J. Nicholson, at the King's-Arms
in Little-Britain. M DCCI.*

W. Musgrave.



To that
G R E A T M A N
S^R Godf. Kneller, Kt.

S I R,



*T*is Honor, as Ci-
cero says, which
gives Being, Life,
and Perfection to
Arts and Sciences,
and it is That in you which, I hope,
will Indulge this Infant Production,
from Minerva's Stock : If it

Epistle Dedicatory.

Obtains but your Approbation, I have my End ; and therein shall account my Endeavors Fortunate, and my Self Happy.

I have made bold to shelter it under your Protection, of which my small Confidence makes me believe I am not deceived : But of this I am certain, That if it perishes not by your Dislike, it will live by your Estimation : It is your Countenance of the Work, which will be as a Seal to it, and make it as a Standart of Truth to succeeding Generations.

As Universal Fame acknowledges you the Chief of your Profession, and has made you a great Judge of things of this Nature ; so I could not have chosen out a more Fit or Exquisite Patron ;

Epistle Dedicatory.

*a Man as excellently Accomplish-
ed to Determine, as you are ad-
mirably Skilful to Perform.*

*The Work of it self is but as a
Dead Body, but as a Body with-
out a Soul; it is your Character
and Name must give it Life and
Spirit; and then with your Me-
mory, I am sure it will be Conse-
crated to Eternity.*

*I am wholly unskill'd in the
Arts of Adulation, and know
nothing of Flattery: but this I
say, that could I Write as Ex-
cellently, as you can Design; and
Decipher in Words, as well as you
can with the Pencil, I would leave
to all Posterity, the Great Life
of the Immortal Kneller.*

*I will not detain you any long-
er; but I have this to Observe,*

Epistle Dedicatory.

*That you who are the Honor of
your Profession, and the Glory of
your Art, have by your Excellency
therein, obtained a Precedency a-
bove other Men ; and all your
Performances are such, not to make
Imitators, but Admirers, amongst
whom is,*

Sir,

Your Faithful,

A N D

Humble Servant,

William Salmon.

T H E

P R E F A C E.

I. **T**HE Subject of the ensuing Work, is the Art of Painting; a Name not only too singular, but also too short or narrow, to express what is here intended thereby: For we do not only express that Art, (as it is generally received) but also Drawing, Engraving, Etching, Limning, Painting in Oil, Washing, Coloring and Dying: All which being considered in their proper Extent, infinitely exceed that curtail'd Name of Painting; which that we might join all in one proper and comprehensive Word, we made choice of that Greek Compound, POLYGRAPHICE.

II. To perswade any one to the Study or Practice of these Arts, would be a great Folly; since Ignorance (which is always blind) can never be able to judge aright: For to him that already understands it, the Labour would be useless and unprofitable; to him which is already delighted therein, it would be needless and superfluous; and to the Averse and Ignorant, it would be the putting a Jewel into a Swines Snout: The exquisite Knowledge of which, is impossible ever to be attained or understood by such

The PREFACE.

prejudicate and cloudy Souls, although it is sufficiently known to many already; and its Usefulness as apparent as it is Excellent: To enumerate the one, or rehearse the other, it is but to perswade the World, that it is day-light when the Sun is upon the Meridian; or at least to inculcate an Ignorance of those things, which have been manifestly known, even a long time since.

III. *The Method of this Work is wholly new, wherein we have united and made one, such various Subjects as have been the uncertain, obscure and tedious Discourse of a great number of various and large Volumes. What shall we say? Things far asunder, we have laid together; things uncertain, are here limited and reduced; things obscure, we have made plain; things tedious, we have made short; things erroneous, we have rectified and corrected; things hard, we have made facil and easy; things various, we have collected; things (in appearance) Heterogene, we have made Homogene: And in a word, all these Arts we have reduced to certain Heads; brought under a certain Method; limited to practical Rules, and made them Perspicuous, even to a very mean Understanding.*

IV. *In the Composure of this Work, (besides our own Observations) we have made use of the best Authors now extant, that we could possibly procure or get into our hands; wherein our Labour was not small, what in Reading, Comparing, Transcribing, Choosing, Correcting, Disposing and Revising every thing in respect of Matter, Form and Order. The which had we any Precedent to have followed, any Path to have traced, any Example to have imitated, any Help to have consulted, or any Subject entire: Or otherwise, had the Number of our Authors been small, their Maxims Truths, their Rules certain, their*

THE PREFACE.

their Meanings not obscure, or their Precepts been reduced to Method or Order, we might not only with much more Ease, Pleasure and Certainty; less Labour, Trouble and Pains; greater Perspicuity, Plainness and Singularity; better Order, Method and Language; but also in shorter time have brought to Perfection, what we here present you withal.

V. *In this Eighth Edition, we have inserted above five Hundred several Additions of singular Use to the Matter in hand, and so necessary to the Work, that without them they might really be accounted Defective. There is the various Depictings of the Ancients, according to the Customs of several Nations, drawn from the best, most experienced and faithfullest Authors, whether English, Italian or Latin: together with the Original Advancement and Perfection of these Arts.*

VI. *For the farther Satisfaction and Pleasure of young Artists, we have given you a Translation out of Latin, of the One Hundred and Twelve Arcanums of Petrus Johannes Faber, a most Learned and Famous Physician of Montpelier in France, and a very great Chymist and Alchymist. They have been earnestly sought for by many Ingenious Gentlemen, but by reason of the Scarceness and great Price of the Book, they were not easy to be had: and being also in Latin, not to be understood by every one who had a Curiosity that way. For these Reasons we took the Pains of Translating the same; and in so doing, for the better understanding of the Matter, have carefully clausd each Particular, that the Sense of the Author might the better be apprehended. But truly it is our Opinion, that most of them, if not all, need a Clavis or Key to unlock them, that their Meaning and Intention might be understood; and one Key, it is said, will unfold them all, except two of them, whose*

The PREFACE.

whose Meaning and Interpretation is according to their literal Expression : The Investigation of the Key, or finding out those two unriddled Arcanums, we shall leave to the Scrutiny of the Industrious Student, who may at one time or other per Accidens meet with that unlookt for, and unthought of, which is by many so much desired, and which peradventure by the same Hand might have otherwise been perpetually sought for in vain,

WILLIAM SALMON.

THE

Postscript.

I. **T**HIS Book having in a few Years time so obtained in the World, as to come to an Eighth Impression, above Fifteen Thousand of them having been already Sold ; I was requested once more to give it a Review, not only to mend the Faults escaped in the former Impressions, and to reduce it to some better Order and Method ; but also to add to it such other new Matter as the Nature of the Book might require, to supply it in several places, where it might be defective or wanting : To Explicate it in such Places and Paragraphs which were dubious, and not vulgarly Intelligible : And further to Enlarge it with a number of New and most Excellent Secrets, not yet in many Mens Hands.

II. As to the particulars, which are added in this Impression, you have, 1. In the first Book, an Appendix containing five whole Ch pters. 2. The Sixth Book of *Dying and Staining* wholly new, never any thing of that kind being published in Print to our knowledge before. It was the Manuscript of an Experienced Dyer, who had practised that Art above Fifty Years, and Dying, left behind him his Secrets of that kind. I challenge nothing of it, but the new Methodizing, and fitting it for the Press. 3. In the Seventh Book, besides the Additions in the Tenth Chapter, there are added
Eleven

POSTSCRIPT.

Eleven whole Chapters concerning the *Philosophick Tincture* or *Elixir*, viz. Chap. XII. XIII. XIV. XV. XVI. XVII. XVIII. XIX. XX. XXI. XXII. Which is the certain Work of a True Adept.

4. In the Ninth Book, the Additions are scattered throughout, but they are so many as will make compleatly three quarters of that whole Book.

5. The Tenth Book, containing XLIII. Chapters, is wholly new, there being exactly laid down, and in a succinct and brief Method, all the ways of Painting, Coloring and Staining of Glass, Crystal, Enamel and Gems, and the way of making Adulterate or Counterfeit Precious Stones so exact, that an Artist himself shall scarcely discern the Artificial from the True, without bringing them to the Wheel.

6. The whole Eleventh Book containing the Arts of Vernishing, Japanning, and Gilding, reduced into a shorter and much better Method, than ever was done by any Author before.

7. Besides all which, we have farther Enlarged and Compleated it, with above Five Hundred other Additions, Paragraphs, and Observations, where the order and necessity of the Work required it, which are interspersed thro' the other parts of the Work, viz. of the I. II. III. IV. and V. Books, in their proper places; and are either Explicatory or Directive to the matter in hand.

III. In the Seventh Book, are some Discourses of *Alchymie*, and the very Process it self, (as it is believed) by which the Masters of that Learning, attained to the Sum of all their Glory. In the Perfection thereof, there are Riches, Honor, Health, and Long Life: By it *Artesius* (a Jew) lived, as is reported, a Thousand Years; how true it is, I will not say; himself affirms it: And very Wise Men, such as *Paracelsus*, *Pontanus*, and others, seem to give Credit to it. And thereby *Flammel*, a French Man, originally a poor Scrivener in *Paris*, left so
great

POSTSCRIPT.

great Monuments behind him, as must convince the most Incredulous, that he knew the Secret, and did such mighty Works, at his own proper Costs and Charges, as the most Opulent Prince in *Europe* can never do the like. He built Twenty eight Hospitals in *France*, also Twenty Churches and Chappels, and Endowed them all, with large Revenues and Incomes.

IV. As to the many Additions to every Impression of this Book hitherto, I make bold to excuse my self: I confess it is an abuse, and such an one which I my self, who have been a great buyer of Books, have often complained of; it is indeed an Oppression upon the Publick, for when a new Edition comes forth, with considerable Additions, the former Book is worth little or nothing. The truth is, the Copy was formerly in the hands of such Men, who thought much at every Penny they laid out, and provided it would but answer their ends, and bring them Money, they cared not how meanly the Publick was served by it. But now it is fallen into the hands of more Generous Spirited Men, who were desirous of having a good Work, and a Compleat Thing, and stuck at no Money to bring the same to Perfection: And accordingly, you see to what a Maturity their Gentleman-like Dispositions, and Noble Spirits have brought this Book: 'Tis through them, and their means, you have it thus compleat; and to them you ought to shew your good Nature, in rendring your Acknowledgments and Thanks, for that otherwise you must have been contented to have taken up with the few Fragments, which the penuriousness of the former Booksellers had afforded you.

V. But to make you amends for this trespassing, not so much upon your Patience, as upon your Purse, we offer you here the Valuable Additions which this Impression is enriched withal; which I
am

POSTSCRIPT.

am very confident, the Ingenious Artift would not be without for ten times all that the Book will cost him, (notwithstanding all the other Editions which he has formerly bought, which are now like an old Almanack, out of Date :) This is enough, we hope, to give some satisfaction, and stop your repining, especially when you shall consider (by comparing this Edition with some of the former) what Care and Pains I have taken in the Editing thereof: This Copy also is all Corrected from the Press with my own hand, which I will not promise any future Edition shall be; and therefore may be, on that account, more Valuable than any that shall be hereafter Printed. And withal I promise, That from henceforth I will never make any more Alterations or Additions to this Work.

From my House at Black-
Fryers Stairs, London.
24 October. 1700.

William Salmon.

ERRATA.

Pag. 44. lin. 29. and pag. 45. lin. 30. for *Rectified*, read *Rectified*. pag. 774. lin. 30. for *Centural*, read *Central*.

THE

THE CONTENTS.

Liber Primus.

Of Drawing.

Chap.	Page.
1 <i>OF Polygraphice in General.</i>	1
2 <i>Of the Instruments of Drawing.</i>	2
<i>Of making Pastils or Crions.</i>	2, 3, 4, 5
<i>Of using Pastils or Crions.</i>	6
<i>Of using Indian Ink.</i>	7
3 <i>Of the Precepts of Drawing in General.</i>	7
4 <i>Particular observations in Drawing.</i>	10
5 <i>Of the Imitation of the Life.</i>	13
6 <i>Of the Imitation of Draughts.</i>	16
7 <i>Of Drawing the face of a Man.</i>	18
8 <i>Of Drawing the extreame Parts.</i>	20
9 <i>Of Drawing the whole Body.</i>	21
10 <i>Of Drawing a naked Body.</i>	22
11 <i>Of shadowing a naked Body.</i>	24
12 <i>Of the way and manner of Shadowing.</i>	25
13 <i>Of expressing Passions in the Face.</i>	26
14 <i>Of human Proportion.</i>	28
15 <i>Of Drapery.</i>	35
	16 <i>Of</i>

The CONTENTS.

Chap.		Page.
16	Of mixed and uncertain Forms.	38
17	Of Landskip.	39
18	Of Diapering and Antique.	41
19	Of taking the true Draught of a Picture.	42
	To take the shape of a Leaf, Herb, &c.	43
	To take the Picture of an Herb from an old Picture.	43
20	Of extending or contracting a Picture.	44
21	Of Perspective in General.	44
22	Of the Active part of Perspective.	46
23	Of the Subject to be seen.	47
24	Of the general practise of Perspective.	49

APPENDIX.

25	Of the Uses of Perspective.	51
26	Of the measures of human Bodies.	53
27	Of some General Observations.	54
28	Of Light, Shadow and Color.	57
29	Of the Explication of Terms of Art.	63

Liber Secundus.

Of Engraving, Etching, and Limning.

1	OF Graving and the Instruments thereof.	69
	2 Of Polishing the Copper Plate.	71
3	Of holding the Graver.	71
4	Of the way and manner of Engraving.	72
5	Of Imitation of Coppies or Prints.	73
6	Of Engraving in Wood called Cutting.	74
7	Of Etching, and the Materials thereof.	75
	To make the hard Varnish.	76
	To make the soft Varnish.	76
	To make the Aqua-fortis.	77
8	Of using the hard Varnish.	79
9	Of the way and manner of Etching.	85
		Of

The CONTENTS.

Chap.	Page.
Of Etching Landships.	82
10 Of using the Aqua-fortis.	84
11 Of finishing the Work.	85
12 Of using the soft Varnish.	86
13 Of Etching upon the soft Varnish.	87
14 Of using the Aqua-fortis and finishing the Work.	88
15 Of Limning and the Materials thereof.	90
16 Of the Gums and their Use.	91
17 Of the seven Colors in General.	92
18 Of Colors in Particular.	94
Observations on Reds.	98
Observations on Browns.	99
Observations on Greens.	ibid
Observations on Yellows.	ibid
Observations on Blems.	100
Observations on Whites.	ibid
Observations on Blacks.	ibid
A glorious color of East-India Cakes.	101
19 Of mixt and compound Colors.	ibid
20 Of Colors for Drapery.	105
21 Of Liquid Gold and Silver.	107
Argentum Musicum.	ibid
Aurum Musicum.	108
22 Of preparing the Colors.	109
Mixtures for shadowing Histories.	111
Mixtures for shadowing Faces.	ibid
Mixtures for shadowing Hair.	ibid
23 Of the manual Instruments.	112
24 Of Preparations for Limning.	114
25 Of Limning in Miniature.	116
26 Of Limning Drapery.	119
27 Of Limning Landskip.	124
28 Of Light and Shadows.	126
29 Of Colors more particularly.	130
30 Of making some Original Colors.	131
31 Of Limning to the Life in General.	133
The Dead coloring of a Figure.	136
To draw with Indian Ink.	138
32 Of Limning Landskip particularly.	139
33 Of the various forms or degrees of Coloring.	142
34 Of Limning the Skie, Clouds, &c.	144
35 Of Limning Towns, Castles, Ruins.	145
a	36 Of

The CONTENTS.

Chap.	Pgae
36 Of Mountains, Hills and the like.	145
37 Of Trees, Boughs, Cottages, &c.	146
38 Of Limning naked Figures.	147
39 Of Limning Hair.	148
40 Of Walls, Chambers and the like.	149
41 Of Marble Pillars, Rocks, &c.	150
42 Of Coloring Metals.	ibid
43 Of Limning Flowers.	151
44 Of Radishes, Turneps, Melons, Cucumbers.	152
45 Of Limning Fruits.	153
46 Of Limning Birds.	154
47 Of Limning Beasts.	155
48 Of Limning Serpents.	157
49 Of Limning Waters and Fish.	158

Liber Tertius.

Of Painting, Washing, Gilding, Colors, &c.

1	OF Painting in General.	159
2	Of Painting in Oil and the Materials thereof.	161
3	Of Colors in General and their significations.	163
4	Of fitting colors for Painting.	164
5	Of Colors for Velvet.	165
6	Of Colors for Sattins.	166
7	Of Colors for Taffery, Cloth, Leather.	167
8	Of Colors for Garments in General.	168
9	Of Colors for Metals and Precious Stones.	169
10	Of Colors for Landskip.	170
11	Of Painting the Face.	171
12	Of cleansing old Paintings.	172
13	Of a Picture in General.	174
14	Of the choice of Coppies or Patterns.	176
15	Of disposing of Pictures and Paintings.	177
16	Of	

The CONTENTS.

Chap.		Page.
15	Of Marble and Tortoise Shell Japan.	897
1	Marble Japan.	ibid
2	Another Marble Japan.	898
3	Tortoise Shell Japan.	899
4	Another Tortoise Shell Japan.	900
5	Another Tortoise Shell Japan.	901
6	Another Tortoise Shell Japan.	ibid
16	Of laying Speckles or Scremings on Japan.	902
17	Of Japanning Metals with Gum Water.	904
18	Of Japanning in Gold Size.	905
19	Of Japanning with Gold and Colors.	908
20	Of Raised and Embossed Works.	910
	The First Way.	ibid
	The Second Way.	912
	A Third Way.	913
	To set off Embost Works with Black.	914
	To manage Rock Work.	915
21	Of Bantam Work.	916
22	Of taking off Japan Patterns.	918
23	Of Gilding in Oil.	919
24	Of Gilding Wood with burnisht Gold and Silver.	921
25	Of Gilding of Metals.	924
26	Of Gilding and Painting Mezzotinto Prints.	927
27	Of laying Prints upon Glas.	930
	To Paint Mezzotinto, or-Engraved Landskip.	931
	To Paint a Humane Body.	933
	To Paint Drapery.	934

APPENDIX.

28 Of making Sealing Wax and Glens.	936
-------------------------------------	-----

The

The CONTENTS

The Characters Explained.

gr. A grain. *The 20th part of a scruple.*

ʒss. Half a scruple. *Containing 10 grains.*

ʒ A scruple. *Containing 20 grains.*

ʒss. Half a dram. *Containing 30 grains.*

ʒ A dram. *Containing 3 scruples.*

ʒss. Half an ounce. *Containing 4 drams Troy.*

ʒ An ounce. *Containing 8 drams Troy.*

℥ss. Half a pound. *Containing* $\begin{cases} 7 \text{ ounces Troy.} \\ 8 \text{ ounces Averdupois.} \end{cases}$

℥ A pound. *Containing* $\begin{cases} 14 \text{ ounces Troy.} \\ 16 \text{ ounces Averdupois.} \end{cases}$

℞ Recipe. *Take or Receive.*

'Ana. Of each a like. *viz. alike Weight or Number.*

SSS. Stratum super Stratum. *Which is, Lay upon Lay.*

POLY-

THE CONTENTS.

Chap.		Page.
16	Of Frescoe, or Painting of Walls.	178
17	Of Painting Sun dials, Timber-work, &c.	179
	How Colors are to be set off.	185
	To transfer the draught of a Dial upon the Plane.	186
	To Gild the Figures of Sun dials.	187
18	washing Maps, Pictures, &c.	189
19	Of Colors simple for washing Maps, &c.	191
	To make Verdigrise according to Glauber.	192
20	Of Colors compound for washing Maps, &c.	194
21	Of mixing Colors and Shadowing.	196
22	Of Colors for washing Landships.	198
23	Of the Practice of Washing.	199
	How to lay on your Colors.	200
24	Observations on Vegetable Colors.	202
25	Observations on Mineral Colors.	206
26	Of Metals.	209
27	Of the way and manner of Gilding.	215
28	Of making white Colors, and whitening Plaster Walls.	219
29	Of Mezzotinto, and taking off an old Print on white Paper.	220
30	Of making various sorts of Ink.	221

Liber Quartus.

The Original, Advancement and Perfection of the Art of Painting: Exemplified in the various Paintings of the Ancients.

1	OF the Original of these Arts.	301
	2 Of the Progress of these Arts.	307
3	Of the Perfection of the Art of Painting.	316
4	Of the Ancients depicting their Gods, and first of Saturn.	326
	5 Of	326

The CONTENTS.

Chap.	Page.
5 <i>Of the Ancients depicting Jupiter.</i>	327
6 <i>Of the Ancients depicting Mars.</i>	329
7 <i>Of the Ancients depicting Phœbus or Sol.</i>	330
8 <i>Of the Antients depicting Venus.</i>	332
9 <i>Of the Ancients depicting Mercury.</i>	333
10 <i>Of the Ancients depicting Diana or Luna.</i>	335
11 <i>Of the Ancients depicting Janus.</i>	337
12 <i>Of the Ancients depicting Aurora.</i>	338
13 <i>Of the Ancients depicting Juno.</i>	339
14 <i>Of the Ancients depicting Ops or Tellus.</i>	340
15 <i>Of the Ancients depicting Neptune and Sea-gods.</i>	341
16 <i>Of the Ancients depicting Nemesis.</i>	343
17 <i>Of the Ancients depicting Pan.</i>	ibid
18 <i>Of the Ancients depicting Plato.</i>	345
19 <i>Of the Ancients depicting the Parcæ.</i>	346
20 <i>Of the Ancients depicting Minerva or Pallas.</i>	ibid
21 <i>Of the Ancients depicting Vulcan.</i>	347
22 <i>Of the Ancients depicting Bacchus.</i>	348
23 <i>Of the Ancients depicting Fortune.</i>	349
24 <i>Of Virtue, Truth, Peace, Honor, Fame, Opinion.</i>	352
25 <i>Of Night, Sleep, Silence, Pleasure, Fear.</i>	353
26 <i>Of Philosophers, Law-givers, Kings, Queens.</i>	355
27 <i>Of the Painting of the Sybils.</i>	357
28 <i>Of Arts, Virtues, Passions, and minor Gods.</i>	359
29 <i>Of expressing the Powers.</i>	362
<i>Eternity.</i>	ibid
<i>Time, Fate, Fortune.</i>	363
<i>Equality, Victory, Peace, Providence, Concord, Fame,</i> <i>Destiny.</i>	364
30 <i>Of depicting Virtues and Vices.</i>	365
31 <i>Of depicting Rivers.</i>	367
<i>Tiber, Nilus, Tigris.</i>	ibid
<i>Ganges, Indus, Thamisis, Arnus, Po, Danubius.</i>	368
<i>Achelous, Niger.</i>	369
32 <i>Of depicting the Nymphs.</i>	ibid
<i>Napæa, Dryades, Naiades, Thetis, Galatea, Iris.</i>	370
<i>Nymphæ dianæ, Aurora.</i>	371
33 <i>Of depicting the nine Muses.</i>	ibid
34 <i>Of the four Winds.</i>	372
35 <i>Of the Months of the Year.</i>	373
	Liber

The CONTENTS.

Liber Quintus.

Of Beautifying and Perfuming.

Chap.	Page.
1 O F Painting the Face and Skin.	375
2 Of Cosmeticks which beautify without Paint.	380
3 Of Cosmeticks for the Vices of the Skin.	384
4 Of other admirable Beautifiers.	388
5 Of cleansing the Teeth.	391
6 Of making a sweet Breath.	393
7 Of beautifying the Hair.	396
8 Of Perfuming in General.	399
9 Of the Matter of which Perfumes are made.	ibid
10 Of the Oil of Ben.	400
11 Of Sweet Waters.	401
12 Of Perfuming Oils and Spirits.	404
13 Of Perfuming Essences.	406
14 Of Perfuming Unguents.	408
15 Of Perfuming Pouders.	409
16 Of Perfuming Balsams.	414
17 Of Perfuming Tablets.	415
18 Of Pomanders for Bracelets.	416
19 Of Perfuming Wash-balls.	419
20 Of Perfuming Soaps.	421
21 Of burning and boiling Perfumes.	422
22 Of Animal and Mineral Perfumes.	425
23 Of the Adulteration of Musk, Civet, Ambergrise.	426
24 Of Perfuming Cloth, Skins, Gloves.	428

The CONTENTS.

Liber Sextus.

Of the Arts of Dying and Staining.

Chap.	Page.
1 O F Dying Ash Colors.	431
2 Of Dying Blacks.	433
3 Of Dying Blews.	436
4 Of Dying Browns.	438
5 Of Dying a Cinnamon Color.	440
6 Of Dying Clove Colors.	442
7 Of Dying Flesh Colors.	443
8 Of Dying Grey, Russet, or Lead Colors.	444
9 Of Dying Greens.	445
10 Of Dying Hair Colors.	449
11 Of Dying Mouse Colors.	450
12 Of Dying Pink Colors.	452
13 Of Dying a Rose Color.	453
14 Of Dying Red Rose or Carnation Color.	454
15 Of Dying Red Colors.	455
16 Of Dying a Red Blush Color.	458
17 Of Dying Scarlet and the Bow-dye.	459
18 Of Dying Sand Colors.	461
19 Of Dying Snuff Colors.	462
20 Of Dying Violet and Purple Colors.	463
21 Of Dying yellows and orange Tawny.	465
22 Of Watering Stuffs, taking out Spots.	467
23 Of Dying Paper, Parchment, Leather.	469
24 Of Dying Wood; Horns, Bones, &c.	472
25 The Conclusion.	474

Liber

The CONTENTS.

Liber Septimus.

Of Alchimy, and the Philosophers Elixir.

Chap.	Page.
1 O F Alchimy in General.	477
2 Of Saturn or Lead.	479
3 Of Jupiter or Tin.	481
4 Of Mars or Iron.	483
5 Of Sol or Gold.	484
6 Of Venus or Copper.	485
7 Of Mercury or Quick-silver.	488
8 Of Luna or Silver.	490
9 Of the Accidents of Metals.	491
10 Of the great Philosophick Work.	503
11 Of the grand Elixir from an old Hermit.	509
12 Of the Qualities of the Philosophers Stone.	513
13 Of the Matter of the Philosophers Stone.	517
14 A continuation of the former Discourse.	520
15 Of the Preparation of the Philosophers Stone.	525
16 Of the Practick part of the Preparation.	529
17 The former Discourse continued.	532
18 Of the Instruments of this Work.	536
19 Of the Fire; and first the Ignis Externus.	537
20 Of the Ignis internus.	540
21 Of the time for doing this Work.	542
22 Of a Profitable Particular Work.	544

APPENDIX.

23 Of certain natural Experiments,	548
------------------------------------	-----

The CONTENTS.

Liber Octavus.

Faber's Arcanum's.

Chap.		Page.
1	T HE highest Tincture of Sol, fixed for Luna.	557
2	The way of fixing Luna.	558
3	The white fixed Tincture for Venus.	559
4	The fixed Oil of Mercury.	ibid
5	The red Cinnaber of Antimony.	560
6	A fixed Tincture to project on Venus.	561
7	The fixing of Oil of Tartar.	ibid
8	To fix the Oil of Sal-Armoniack.	562
9	A wonderful red Tincture from Vitriol.	563
10	To make the aforesaid Oil of Gold.	564
11	To encrease Gold and Silver.	565
12	A fixed Tincture for Venus.	ibid
13	The purgation of Venus for the former Tincture.	567
14	To Congeal or Harden Mercury.	ibid
15	With Regulus of Antimony to make Gold.	568
16	For making Sol.	569
17	For the whitening of Copper.	570
18	The Cementation of Sol.	ibid
19	Oil of Sulphur Vive.	571
20	A Tincture for Sol.	272
21	To extract Mercury from Antimony.	ibid
22	An Elixir of the Golden Work.	573
23	The extraction of the Virgins Milk.	574
24	For the whitening of Copper.	575
25	A secret from Antimony and Mercury.	ibid
26	A Tincture of Luna upon Venus.	577
27	A Tincture of Sol upon Luna.	ibid
28	Another Tincture of Sol upon Luna.	578
		29 A

Chap.

29 A

30 A

31 A

32 A

33 M

34 T

35 C

36 T

37 T

38 T

39 T

40 T

41 T

42 T

43 M

44 T

45 T

46 T

47 T

48 T

49 T

50 T

51 T

52 T

53 T

54 T

55 T

56 T

57 T

58 T

59 T

60 T

61 T

62 T

63 T

64 T

65 T

66 T

67 T

The CONTENTS.

Chap.	Page.
29 <i>A Tincture of Sulphur and Mars for Luna.</i>	278
30 <i>A Tincture from Sulphur Vipe, and Argent Vipe upon Luna.</i>	580
31 <i>A preparation of Arsenick to whiten Venus.</i>	581
32 <i>A fixed Tincture to change Luna into Sol.</i>	582
33 <i>Mercury Water.</i>	ibid
34 <i>To Tinge Luna into Sol.</i>	583
35 <i>Crocus Martis more noble for the former secret.</i>	584
36 <i>To turn Water into good Wine.</i>	585
37 <i>To turn the fusible Oil of the Golden Marchasie into Gold.</i>	586
38 <i>The Oil of an Alkali for the former secret.</i>	587
39 <i>To Tinge Luna into Sol.</i>	ibid
40 <i>To make the Mercury of Antimony.</i>	588
41 <i>To extract Mercury from Metals.</i>	589
42 <i>To transmute Antimony into Sol.</i>	ibid
43 <i>Mercury of Luna and with it a great Elixir.</i>	590
44 <i>To tinge and fix Venus into good Luna.</i>	591
45 <i>To fix and tinge Luna into good Sol.</i>	592
46 <i>To fix Mercury into fine Luna.</i>	ibid
47 <i>To fix Mercury into fine Sol.</i>	593
48 <i>To fix Mercury into fine Sol.</i>	594
49 <i>To fix Mercury into fine Luna.</i>	ibid
50 <i>To fix Mercury into true Sol.</i>	595
51 <i>To make the Oils of Sol and Luna.</i>	596
52 <i>To fix Luna into Sol.</i>	597
53 <i>To extract Mercury from Sol.</i>	ibid
54 <i>To fix this Mercury into fine Sol.</i>	598
55 <i>To fix the Mercury of Luna into Luna.</i>	599
56 <i>To cement Luna into true Sol.</i>	ibid
57 <i>To make Aurum Potabile.</i>	600
58 <i>To make Argentum Potabile.</i>	601
59 <i>To transmute Luna into Sol.</i>	602
60 <i>To transmute Venus into Luna.</i>	603
61 <i>A Silver Mine which will never decay.</i>	604
62 <i>A Golden Mine to transmute Luna into Sol.</i>	602
63 <i>A tinging Water, to tinge Luna.</i>	605
64 <i>To multiply Luna.</i>	606
65 <i>To tinge Luna into Sol.</i>	607
66 <i>To make the true Red Oil of Antimony.</i>	ibid
67 <i>To fix Luna.</i>	609
	63 A

The CONTENTS.

Chap.	Page.
68 <i>A Tincture of Mars for tinging Luna.</i>	609
69 <i>To reduce Sol into Mercury, with Mercury.</i>	610
70 <i>To make a Golden Mine.</i>	612
71 <i>To make the aforesaid Mine tinge Luna in Sol.</i>	613
72 <i>To transmute Mercury into Sol.</i>	614
73 <i>To transmute Mercury and Luna into Sol.</i>	615
74 <i>To tinge Venus into Luna.</i>	616
75 <i>To tinge Venus into Luna.</i>	ibid
76 <i>To tinge Luna into Sol.</i>	617
77 <i>To tinge Luna into Sol.</i>	618
78 <i>To make a Water of Mercury.</i>	619
79 <i>To tinge Venus into Luna.</i>	620
80 <i>Another way to make Aq. Mercurij.</i>	ibid
81 <i>Aq. Mercurij, another way.</i>	621
82 <i>An Elixir of the Spar Saturni.</i>	ibid
83 <i>An Elixir from Pearl.</i>	623
84 <i>To make small Pearls into great Ones.</i>	625
85 <i>To make Malleable Glass.</i>	627
86 <i>To make Carbuncles of Crystal.</i>	628
87 <i>To make Trees bear three times a Year.</i>	ibid
88 <i>To fix Mercury with Salt of Tin.</i>	630
89 <i>To fix Mercury into a white Oil for Transmutation into Sol.</i>	631
90 <i>To fix Mercury into a white Oil for Transmutation into Luna.</i>	632
91 <i>To make a Red Tincture with Nitre.</i>	633
92 <i>To make a White Elixir.</i>	634
93 <i>To make a Red Elixir for Sol.</i>	635
94 <i>Spirit of May-dew for the former secret.</i>	635
95 <i>The fixing of Arsenick.</i>	636
96 <i>To resolve Sol into its first matter.</i>	637
97 <i>To make Spiritus Mercurij.</i>	638
98 <i>Spirit of Lime to dissolve all things.</i>	639
99 <i>To transmute Jupiter into Luna.</i>	ibid
100 <i>A White Elixir to transmute Metals into Luna.</i>	640
101 <i>A Red Tincture of Mars for Sol.</i>	642
102 <i>An Elixir of Tin for the white Work.</i>	643
103 <i>A lesser Tincture for the white Work.</i>	644
104 <i>The Physical Stone made of Dew.</i>	645
105 <i>To fix Mercury.</i>	646
106 <i>To Congeal Mercury into Luna.</i>	647

Chap.	Page.
107	7
108	7
109	7
110	7
111	7
112	7
113	7

I	A
3	O
4	G
5	O
6	O
7	O
8	O
9	O
10	C
11	C
12	C
13	C
14	C
15	C
16	C
17	C
18	C
19	C
20	C
21	C

The CONTENTS

Chap.	Page.
107 To make the Mercury of Antimony.	647
108 To convert Lead into Mercury.	648
109 A Tincture of Sol for transmuting Luna.	ibid
110 A Tincture of Luna for other Metals.	650
111 A Red Oil of Vitriol, a Secret.	651
112 A Red Tincture from Arsenick.	652
113 The Conclusion of this Eighth Book.	653

Liber Nonus.

Of Chiromantical Signatures.

1 A Demonstration of Chiromantical Signatures.	656
2 Whether right or left Hand to be judged by.	662
3 Of the Planetary Mounts.	664
4 Geneneral Judgments of the Hand.	670
5 Of the Line of Life.	673
6 Of the Epatick or Natural Line.	676
7 Of the Cephalica or Head Line.	680
8 Of the Mensal, or Line of Fortune.	682
9 Of the Restricta, or Cauda Draconis.	685
10 Other Observations on the Hand-Wrist.	887
11 Of the Saturnia, or Line of Saturn.	690
12 Of Linea Solaris, or Stomachica.	692
13 Of the Cingulum, or Girdle of Venus.	693
14 Of the Via Lactea, or Milky Way.	695
15 Of the Mount of Saturn.	697
16 Of the Mount of Jupiter.	699
17 Of the Cavea Martis, and Via Martis.	703
18 Of the Mount of Sol, and Via Solis.	707
19 Of the Mount of Venus.	710
20 Of the Mount of Mercury.	712
21 Of the Mount of Luna.	716
22 Of	22 Of

The CONTENTS.

ChapI		Page.
22	Of the Mensa, <i>Quadrangle</i> or <i>Table</i> .	717
23	Of the <i>Fingers</i> .	720
24	Of the <i>Thumb</i> .	721
25	The <i>Good</i> and <i>Evil Lines</i> , and <i>Characters</i> .	723
26	Certain <i>Chiromantical Aphorisms</i> .	724

Liber Decimus.

Of Painting and Coloring, or Staining *Glass*, *Enamel*, and *Gems*.

S E C T. I.

O f G L A S S.

1	O F Salts for <i>Glass Works</i> .	730
	2 Of making <i>Frit</i> for <i>Crystal</i> .	734
3	Of <i>Artificial Crystal</i> .	737
4	Colors for tinging <i>Glass</i> and <i>Crystal</i> in <i>General</i> .	740
5	Colors from <i>Lead</i> .	748
6	Of Colors from <i>Iron</i> .	755
7	Of Colors from <i>Copper</i> or <i>Brass</i> .	758

S E C T. II.

O f G E M S.

8	Of <i>Cements</i> , <i>Mineral Colors</i> , and <i>Gems</i> .	767
9	Of <i>Artificial Gems</i> in <i>general</i> .	774
10	A <i>Paste</i> for a <i>Beryl</i> , or <i>Sky-Color</i> .	778
11	To make a <i>Chalcedony</i> .	778
12	<i>Paste</i> for an <i>Oriental Chrysalite</i> .	783
13	Of making fair <i>Oriental Diamonds</i> .	ibid
	14 <i>Pastes</i>	

The CONTENTS.

Chap.	Page.
14 Pastes for an Oriental Emerald.	787
15 Pastes for an Oriental Granate.	789
16 Pastes for an Oriental Jacynth.	790
17 Pastes for making Artificial Pearls.	791
18 Other various ways of making Artificial Pearls.	794
19 Pastes for Oriental Rubies and Carbuncles.	801
20 Pastes for an Oriental Saphir.	804
21 Pastes for an Oriental Topaz.	805
22 Pastes for an Oriental Turcois.	807

S E C T. III.

Of E N A M E L S.

23 Of Enamels in General.	ibid
24 The way of Enamelling.	809
25 To Enamel on Metals.	811
26 Of Painting on Enamel.	813
27 Of Milk White Enamel.	814
28 Of Black Enamel.	815
29 Of fine Bleu and Turcois Enamels.	816
30 Of Green Enamels.	817
31 Of Purple Enamels.	818
32 Of Rose colored Enamels.	819
33 Of Red Enamels.	820
34 Of Yellow Enamels.	822
35 Of making China, to Enamel, Paint and Gild it.	823

S E C T. IV.

Of Painting G L A S S.

36 Of Painting Glass in General, and of the Colors.	826
37 Preparations of Vegetable Colors.	830
38 Preparations of Mineral Colors.	833
39 Coloring or Staining Glass from Randalphe Holme, and Gerard Wane.	841
40 Some other Colors for Painting Glass.	842
41 The way of Paining on Glass.	844
42 The	844

The CONTENTS.

Chap.		Page.
42	<i>The way of Gilding upon Glass.</i>	448

APPENDIX.

43	<i>A Discourse of Looking-Glasses.</i>	849
----	--	-----

Liber Undecimus.

Of Varnishing, Japanning and Gilding.

1	OF Instruments and Utensils for those Works	854
	2 Of Materials necessary for these Works.	857
3	Of Sizes and Gum Water.	863
4	Of making Varnishes.	866
5	Of some other kinds of Varnishes.	871
6	Of making Japan Varnishes.	876
7	Of making Lackering Varnishes.	878
8	Of the way and manner of Varnishing.	880
9	Some general Observations in Varnishing.	881
10	Of Varnishing Wood without Colors.	883
11	Of Dying or Staining Wood, Bones, Ivory, Horns.	885
12	Of Varnishing Prints.	887
13	Of Preparing Woods for Japanning.	889
14	Of Japanning Wood with Colors.	890
	1 Black Japan.	ibid.
	2 Another Black Japan.	891
	3 White Japan.	892
	4 Blew Japan.	893
	5 Common Red Japan.	894
	6 Deep Red Japan.	ibid.
	7 Pale Red Japan.	895
	8 Olive Colored Japan.	ibid.
	9 Chestnut Colored Japan.	ibid.
	10 Lapis Lazuli Japan.	896

I

POLYGRAPHICES
LIBER PRIMUS.
OF
DRAWING.

CHAP. I.

Of Polygraphice in General.

I. **P**olygraphice is an Art so much imitating Nature, as that by proportional Lines, with answerable Colours, it teacheth to represent to the Life (and that *in plano*) the Forms of all corporeal things, with their respective Passions.

This Definition is clear out of the Nature of the Art, (being also a liberal Art, as are Arithmetick, Geometry, Astronomy, Dialing, Musick, &c.) It is said to represent things in plano, to distinguish it from Carving, which is also a Representation of natural things with Roundity and Thickness.

II. It is called, in general, in Greek *ῥαματική*, in Latin *Pictura*, and in English the *Art of Painting*.

III. It is Sevenfold (to wit) in *Drawing, Engraving, Etching, Limning, Painting, Washing and Colouring*.

IV. *Drawing* is that whereby we represent the Shape and Form of any corporeal Substance in rude Lines only.

V. It consists in Proportion and Passion, as it hath relation to motion and situation, in respect of Light and Vision. If

to proportioned Quantity you add Colour, you will have at length the Form and Perfection of the Figure; so that whosoever sees it, may be able to say, this is a *Man*, that a *Peacock*, that a *Leopard*; and again, this is *John*, that *Thomas*, a third another *Man*, &c. And by the exact performing of these things, you may depict one *Fearful*, another *Crying* and *Lamenting*, another *Angry*, another in *Love*, &c. and that so excellently, that the Party counterfeited may be thereby easily known.

VI. *Sanderfon* saith, This admirable Art is the Imitation of the Surface of Nature in Colour and Proportion. 1. By Mathematical Demonstration. 2. By Chorographical Description, 3. By Shapes of living Creatures. 4. And by the Forms of Vegetables. In all which it prefers Likeness to the Life, conserves it after Death, and this altogether by the Sense of Seeing.

VII. The *Proportion* shews the true length, breadth, or bigness of any part (in known measures) in respect of the whole, and how they bear one to another: The *Passion* represents the visual Quality, in respect of Love or Hatred, Sorrow or Joy, Magnanimity or Cowardice, Majesty or Humility: Of all which things we shall speak in order.

VIII. Herein also *Painting* differs from *Carving*; for the *Carver's* Intent is only to give the self-same Quantity to his Figure, which his natural Pattern hath, viz. equal to the Life in Quantity only: Whereas the *Painter*, by the help of Colours, adds a kind of Life to the Similitude, and gives not only Quantity, but a Colourable Resemblance also.

CHAP. II.

Of the Instruments of Drawing.

I. **T**He Instruments of Drawing are Sevenfold, viz. Charcoals, Feathers of a Duck's Wing, Black and Red Lead Pencils, Pens made of Ravens Quills, Rulers, Compasses, and Pastils or Crions.

II. Charcoals are to be chosen of Sallow-wood split into the Form of Pencils, and sharpened to a point, being chiefly known by their Pith in the middle.

Their

Chap. 2. *The Instruments of Drawing.* 3

Their use is to draw lightly the Draught over at first, that if any thing be drawn amiss, it may be wiped out and amended.

III. *The Feathers* ought to be of a Duck's Wing, (though others may serve well enough) with which you may wipe out any Stroke of the Charcoal where it is drawn amiss, lest Variety of Lines breed Confusion.

IV. *Black and Red Lead Pencils* are to go over your Draught the second time more exactly, because this will not wipe out with your Hand when you come to draw it over with the Pen.

V. *Pens* made of Ravens Quills (but others may serve) are to finish the Work : But herein you must be very careful and exact ; for what is now done amiss there is no altering of.

VI. *The Rulers* which are of use to draw straight or perpendicular Lines, Triangles, Squares or Polygons, the which you are to use in the beginning, till Practice and Experience may render them needless.

VII. *Compasses* made of fine Brass, with Steel Points, to take in and out, that you may use Black or Red Lead at pleasure.

Their Use is first to measure (by help of a curious Scale of equal Parts upon the edge of your Ruler) your Proportions, and whether your Work is exact which is done with the Charcoal. Secondly, To draw Circles, Ovals and Arches withal.

VIII. *Pastils* or *Crions* are made of several Colours to draw, withal upon Coloured Paper or Parchment. Thus,

Take Plaster of Paris or Alabaster calcined, and of the Colour of which you intend to make your Pastils with, ana. q. l. grind them first asunder, then together, and with a little Water make them into Paste ; then with your Hands roul them into long pieces like Black Lead Pencils, then dry them moderately in the Air : Being dried, when you use them, scrape them to a point like an ordinary Pencil.

And thus may you make Pastils or Crions of what Colour you please, fitting them for the Faces of Men on Women, Landskips, Clouds, Sun-beams, Buildings, and Shadows.

IX. *Another way to make Pastils or Crions.*

Take Tobacco-pipe Clay, and with a little Water temper the same with what Colour you please, making several according to the several Heights or Colours you intend ; which mix

with the said Tobacco-pipe Clay, so much as the Clay will bear; work all well together, make or form it into *Pastils* or *Crions*, and let them dry for use.

X. *A Pastil or Crion for a brown Complexion.*

Grind on your stone Ceruse, Red Lead, or Vermilion, English Oker, and a little Pink; to this add a proportionable quantity of Plaister of Paris burnt and finely sifted, or Tobacco-pipe Clay, mix either of them with the said Colours, and then roul them up. Here note, that Ceruse is mixed with all the other Colours also. Roul them up upon a Marble Stone, and let them be about the length of a Finger, and the thickness of a Goose-Quill.

XI. These *Pastils* or *Crions* being dry, you may sharpen them (when you use them) with a Pen-knife to a point, so sharp that you may draw a Hair. The Colour most difficult to work in this kind is *Crimson*, if you make use of *Lake*, which you may avoid by making use of *Rosset*; and be sure to mix Ceruse with all your other Colours and Shadows whatsoever.

After this manner, with proper Compositions, you may make all manner of beautiful Colours, as Greens for Landships, and other Colours for Rocks, Grounds, Skies, Walks, &c.

XII. *A Pastil or Crion for Greens.*

These *Crions* are made of Pink and Bice; and Masticot and Smalt; and Masticot and Indico, with which Colours you may make them lighter or deeper, as you please; remembering that where you are to temper soft or firm Colours, as Umber, Oker, Indico, &c. you are to take the less *Plaister of Paris*; but where the Colours are loose, there bind them stronger and faster, by adding more *Plaister of Paris*.

XIII. *Another way to make Pastils or Crions.*

Take your Colours and grind them very fine upon a Marble, and sift them through a fine Tiffany Sieve; then take a piece of Tobacco-pipe Clay, and lay it on your Grinding-Stone, and temper it and your Colours together with strong Ale-Wort. You must be very careful not to make them too wet, but of an even temper, like moist Clay, to roul up with your Hand upon your Stone: Then take a piece of Paper, and dry them in an Oven, after the Bread is taken out; or you may otherwise dry them in a Fire-shovel by degrees till they be hard enough; which to know, have a piece of Paper by you, and try if they cast, which if they do, they are not dry enough; then dry them again longer till they will not cast;

cast; after which take a Feather, and some Sallet-Oil, and oil them lightly over, and so lay them to dry again, till the Oil be drank well into them, which will make them excellent and to work free and easie.

XIV. Observe that those Colours which bind hard of themselves, must be tempered with less Tobacco-pipe Clay. Moreover, *Yellow Oker* burnt, and rouled up into a *Pastil* or *Crion*, and dried with a moderate Heat; and then being thoroughly dried, and made very warm, and dipp'd into Linseed Oil, and dried again till the Oil becomes well soaked into it, becomes most excellent. This being sharpened to a very fine point, you may draw admirably withal, and it will have that quality, that what is drawn with it, although rubbed hard with your Finger or Hand, it will not rub off, nor any part of it stir. And without doubt all the other Colours may be made to have the same Quality. The *German* Masters, and those of the *Low-Dutch*, made all their *Crions* with that Quality not to rub off, but were extremely neat, brisk, lively, and (like Oil-painting) very strong.

XV. *The way and manner of using your Pastils or Crions.*

Colour the Paper that you intend to draw on with a Carnation or Flesh-colour, near the Complexion of the Party you intend to draw after: Cover the whole Paper with the said Complexion, which is made of Ceruse, Minium, and a little Yellow Oker ground with a little Gum-Arabick. When you prepare them, make a good number of various Complexions together, it not being worth while to make one at a time; lay this Ground-colour with a wet Sponge, but let the Colour be so bound with Gum, that it may not stir from the Paper by rubbing. This being done, and dry, draw the Outscerches or first rough Draught with Coal; that being as you would have it, draw over the same Lines again more perfectly with Red Chalk; then with your several Pastils or Crions rub in your Colours first, and after, with your Fingers sweeten and mix them together, driving and confounding them one into another, after the manner of Oil-Painters. And because many times the *Crions* will not sharpen to so good a Point as Black or Red Chalk, you must be very careful to close and finish all your Work at last with Red and Black Chalk, which you may sharpen at pleasure.

XVI. *Another way of Drawing with Pastils or Crions on Blue Paper.*

The Ground-colours are to be rubbed in first with a Pencil, and afterwards with a stubbed Pencil or your Finger. After the same manner you may work in Parchment exceeding neatly and so curiously, that at a small distance they may be taken for Limning.

XVII. *To make white Pastils or Crions.*

Take Ceruse, or ordinary white Chalk, four Ounces; Roach-Allum, two Ounces; grind them together fine, make them up into a Mass, burn them in a Crucible, and keep them for use.

XVIII. To the former add good Copies, Patterns and Examples of good Pictures and other Draughts; without which it is almost impossible that the young Artitt should ever attain to any Perfection in this Art.

Those that desire to be furnished with any excellent Patterns, Copies or Prints, may have of all sorts, whether of Humane Shape, Perspective, Design, Landskips, Fowls, Beasts, Insects, Plants, Countreys, or any other artificial Figures, exquisitely drawn, at very Reasonable Rates, where this Book is to be sold.

XIX. *Another way to make Pastils or Crions.*

Take Tobaco-pipe Clay, before it is burnt, and grind it well with a little weak Gum-water; then add to it *Vermilion, Blue Bice, or Yellow Oaker*, or what other Colour you please: Let your Gum-Water be very weak, lest it bind too hard; make it up into little Rowls, which dry, and scrape each to a Point for use, as you need them.

XX. *Another way to do the same.*

Take a great Chalk-stone, make deep Furrows in it, two or three Inches long, and so large, that you may lay in each a Quill; then take White Chalk ground very fine, temper it with Oil or Wort, and a little new Milk, and so make Pap thereof; then pour it into the Chalk Furrows, which in a short time you may take out, and roul them up as you would have them; or otherwise let them lie till they are quite dry, and then take them out and scrape them into the Form you desire: You may temper *Lake*, with burnt *Alabaster*, for a Red, and so for other Colours; but Colours which bind overhard, must have a little Water added to them in their grinding.

XXI. *To*

XXI. *To draw with Indian Ink.*

The Out-strokes being first drawn with Black Lead, (after the Dust of the Charcoal is well brush'd off with a Feather) then take a Stick of *Indian Ink*, of the best sort, (not that which is whitish and hard within, for that is naught, and will not work well) wet one end of it with Water, or rather with your Spittle, which is better, for that is not so subject to sink into the Paper, which ought to be very good Dutch Paper; and have ready six or eight small Pencils, of several sizes, which put on little Sticks two or three inches long, the better to hold them.

XXII. With the one Pencil you must draw, and with the other at the other end of the Stick, you must, (it being a little wet with your Spittle) wipe off the hard edge: Begin faint at first, then shadow it higher, as you please; otherwise, if it be too dark at first, you will be in danger of spoiling your Work. The least touch of your Pencil on the *Indian Ink* is enough. This manner of Drawing is pleasant and admirable, and now much in use, setting off the Work very neatly. See *Lib. 2. Cap. 31. Sect. 30.* of this Work.

C H A P. III.

Of the Precepts of Drawing in General.

I. **B**E sure to have all the Necessaries aforesaid in readiness, but it will be good to practise as much as may be without the help of your Rule and Compasses: It is your Eye and Fancy must judge without artificial Measurements.

II. Then first begin with plain Geometrical Figures, as Lines, Angles, Triangles, Quadrangles, Polygons, Arches, Circles, Ovals, Cones, Cylinders, and the like. For these are the Foundations of all other Proportions.

III. The Circle helps in all orbicular Forms, as in the Sun, Moon, &c. the Oval in giving a just Proportion to the Face and Mouth; the Mouth of a Pot or Well, the Foot of a Glass, &c. the Square confines the Picture you are to copy, &c. the Triangle in the half Face; the Polygon in Ground-plats, Fortifications, and the like; Angles and Arches in Perspective;

the Cone in Spires, Tops of Towers and Steeples; the Cylinder in Columns, Pillars, Pilasters, and their Ornaments.

IV. Having made your Hand fit and ready in general Proportions, then learn to give every Object its due Shade, according to its Convexity or Concavity, and to elevate or depress the same, as the Object appears either nearer or farther off the Light, the which is indeed the Life of the Work.

V. *The second Practice of Drawing* consists in forming Fruits, as Apples, Pears, Cherries, Peaches, Grapes, Strawberries, Peascods, &c. with their Leaves; the Imitation of Flowers, as Roses, Tulips, Carnations, &c. Herbs, as Rosemary, Tyme, Hyssop, &c. Trees, as the Oak, Fir, Ash, Walnut, &c.

VI. *The third Practice of Drawing imitates*, 1. *Beasts*, as the Lamb, Elephant, Lion, Bear, Leopard, Dog, Cat, Buck, Unicorn, Horse, &c. 2. *Fowls*, as the Eagle, Swan, Parrot, Partridge, Dove, Raven, &c. 3. *Fishes*, as the Whale, Herring, Pike, Carp, Thornback, Lobster, Crab, &c. *Of which, Variety of Prints may be bought at Reasonable Rates.*

VII. *The fourth Praxis imitates* the Body of Man with all its Lineaments, the Head, Nose, Eyes, Ears, Cheeks, Hands, Arms, and Shadows, all exactly proportional both to the whole, and one to another, as well to situation as magnitude.

VIII. *The fifth Praxis is in Drapery*, imitating Cloathing, and artificially setting off the outward Coverings, Habits and Ornaments of the Body, as Cloth, Stuff, Silk and Linen, their natural and proper Folds; which, although it may seem something hard to do, yet by much Exercise and Imitation of the choicest Prints will become facile and easie.

IX. In drawing of all the foregoing Forms, or whatever else, you must be perfect, first, in the exact Proportions; secondly, in the general or outward Lines, before you fall to shadowing or trimming your Work within.

X. In mixed and uncertain Forms, where Circle and Square will do no good (but only the Idea thereof in your own Fancy) as in Lions, Horses, and the like; you must work by Reason in your own Judgment, and so obtain the true Proportion by daily Practice. Thus,

Having the Shape of the thing in your Mind, first draw it rudely with your Coal, then more exactly with your Lead or Pencil; then peruse it well, and consider where you have erred, and mend it, according to that Idea which you carry in your Mind. This done, view it again, correcting by degrees the other Parts,

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even to the least Iota, so far as your Judgment will inform you; and this you may do with twenty, thirty, forty, or more Papers, of several things at once. Having done what you can, confer it with some excellent Pattern or Print of like kind, using no Rule or Compass at all, but your own Reason, in mending every Fault, giving every thing its due place, and just Proportion: By this means you may rectifie all your Errors, and step an incredible way on to Perfection.

XI. Having then good Patterns and Copies to draw by, the young Artist must learn to reduce them to other Proportions, either greater or smaller, and this by often and many Trials (as we shall hereafter more particularly teach) this requires great Judgment; for in a Cut, you shall find neither circumscribing Strokes, nor difference between Light and Light, or Shadow and Shadow: Therefore serious Observations are required in the Sight of those things, whether coming forwards or going backwards.

XII. The drawing after Plaister-work, done by Skilful Masters, as the Gladiator and Children of *Francisco*, the Rape of the *Sabine* Women, the Wraistler, the *Venus* of *Greece*, *Hercules*, *Hermes*, Anatomical Dissections, and other Pieces of Antiquity, are main and necessary Introductions to attain a Perfection in Drawing after the Life.

XIII. This done, let the young Artist now begin to exercise in Drawing after the Life; (for that is the compleatest, best, and most perfect Copy, which Nature has set for Observation) wherein the Liberty of Imitation is presented in the largest latitude; and this must be attained by much Practice and diligent Exercise, adjoining the Instructions of a good Master.

XIV. In this Practice of Drawing let there be a Perfection attained, before ever there be the least Thoughts of Colours or Painting; for that afterwards all things belonging to Painting, will in a short time be easily and perfectly understood.

C H A P. IV.

Of Particular Observations in the Art of Drawing.

I. **I**N drawing after a Print or Picture, put it in such a Light, as that the Gloss of the Colours hinder not your Sight, so as that the Light and your Eye may equally and obliquely fall upon your Piece; which place at such a distance, that at opening of your Eyes you may view it all at once; the greater your Picture is, the further off you must place it to draw after; the which you must always be sure to put right before you, a little reclining.

II. Observe to draw all your Out-lines at first very faint with a Coal, because, if amiss, you may rub them out with the Feathers of a Duck's Wing, or a bit of Bread, and so mend the Fault the more easily, which, if you lean hard, and draw very black, will be more difficultly rubbed out. These Out-lines must be drawn true and agreeable to the Pattern, before you begin to shadow any part of it. The Out-lines next the Light draw very soft and faint; and having drawn one Feature, let it be a Direction for you in some measure to draw another, by observing with your Eye (and being also guided by your Reason) the distance from that to the next Feature, making a small Mark at the Place with your Coal, and then draw it, and so the next, till the whole Figure is designed.

III. Then observe the middle of your Picture to be copied, which touch upon your Paper with the point of your Coal; then observe the most perspicuous and uppermost Figures (if more than one,) which touch gently in their proper Places: Thus running over the whole Draught, you will see the Skeleton, as it were, of the Work.

But if you go on without these Considerations, whereunto your Draught will tend or run; when having ended your Work, you will be forced to draw the same many times over and over again, and it may be, every time to as little purpose; by the tediousness of which, your Ingenuity will be dulled.

IV. Be secure of a right and true Draught, though you do it slowly; what you think may be done in two or three Hours, it will be better to bestow two or three Days upon; By this means (though you act leisurely, yet you will act prudently,

prudently, and) you will both sooner and better than can be imagined, attain the Perfection of what you desire.

V. These Out-sketches being made, view them diligently, whether they answer your Pattern apparently; for the Gestures of the Life ought to shew themselves eminently in the first and rudest Draughts thereof; without which, be sure your Work will be faulty.

VI. Having viewed these Sketches, begin to correct and amend them (where you find them amiss) and *gradatim* by adding or diminishing a little here and there, as you see it differ from your Pattern, you will bring it nearer and nearer to the Life.

VII. Observe the distance of one Muscle, or Joint, or Limb to another, and the same in all other Accidents of the Figure; their Thickness, Bigness, Length, Breadth, Windings, Turnings, Shadows, &c. Shadow next to the Light very faintly; and where you see bold and free Touches, be not fearful in expressing the same. In drawing a Head by the Life, or otherwise, observe to place your Features exactly right upon the Cross Lines, whether it be a full Face, or a three quarter Face, as you may see in the Examples. In *Foreshorting*, there make the Cross Lines to fly upwards, where they look upwards; but bending downwards, in a circular manner, where the Aspect is downwards. And having the Out-lines true made by a Coal, you must then proceed to trace over again the same Lines with a Pen, drawing them more exactly; and by imitating all the Hatches, with their exact Distances one from another, their crossings, turnings, and winding, with much boldness and freedom perfect your Design.

This with a Charcoal you may easily do, because you may wipe away what is amiss.

VIII. In drawing after Plaister and Embossed Works, choose a good North-light, which let descend from above, not dilating or scattering it self too much, by which you may the more pleasantly shade your Work.

If the Room has a South-light, put oiled Paper before the Window; or if you draw by Candle-light, have a Lamp shaded with oiled Paper; for a Candle will grow lower and lower, which causes the Shades to change, all which you avoid in a Lamp.

IX. Then set your self down about three times as far from the Pattern as the Pattern is high, so as your Eyes in a direct Line may view the same; then with a Plumb-line observe what Parts of your Pattern appear to you, by the
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extending streight thereof, and how one under another they come in Sight, and accordingly make your fundamental Sketches, as we have just before taught.

X. In drawing the Muscles of a Humane Body, you must first have either the Life, or very good Patterns made either of Plaister, or drawn in Pictures, enough of which are to be found in Anatomical Books, but chiefly the Book of *Jacob Vander Gracht*, compleated with many Varieties and Curiosities; from whence the Alterations and Changes, Rising and Falling, Extension and Contraction, and other Operations of the Muscles, Arteries, and particular Members, are in Imitation of the Life excellently depicted.

XI. In drawing after a naked Body, all the Muscles are not so plainly to be expressed as in Anatomical Figures; but that side whose Parts are most apparent and significant in the performing of any Action, must more or less appear according to the Force of that Action.

XII. In young Persons the Muscles must not manifestly appear so hard, as in elder and full grown Persons; the same observe in fat Men, and fleshy, and such as are very delicate and beautiful. And in Women you must scarce express any at all, because that in the Life they either appear not at all, or very little, unless it be particularly in some forceable Action; and then you must represent them but very faintly, lest you spoil the singular Beauty of the Body. The like observe in little Children.

XIII. In drawing of these Muscles the Motion of the whole Body is to be considered; in the rising or falling of the Arms, the Muscles of the Brest more or less appear; the Hips the like, according as they bend outward or inward; and the same chiefly in the Shoulders, Sides, and Neck, according to the several Actions of the Body: All which Alterations are first to be observed in the Life.

XIV. The Width and Largeness of the Picture is also to be considered; about the Legs and Garments below it should be larger, shewing it slender above, as it were Pyramidal-wise, by discovering one Shoulder, and hiding the other, which is shortned by turning the Body.

XV. But sometimes the Figure is to be represented biggest in the upper Parts, by representing either both the Shoulders, or both the Arms, shewing the one Leg and hiding the other, or both of them, after one sort, as the Discretion of the Artist shall see meet.

XVI. N i.

XVI. Neither ought this to be observed only in the whole Body, but even in every Part; so that in the Legs, when a Muscle is raised outwards on the one side, that which answers directly on the contrary side must be drawn in and hid, for so it appears in the Life.

XVII. The Proportion of the *Figure* ought to be multiplied by degrees in proportion of one to two, three, four, &c. For herein the chief Skill consisteth; the Diameter of the biggest Place between the Knee and the Foot, is double to the least; and the largest part of the Thigh triple.

CHAP. V.

Of the Imitation of the Life.

I. **I**N order hereunto it will be necessary (having fixed a convenient Time and Place) to choose a good Master, with whom you may spend two Days in a Week at least; or else a Society of about half a score or a dozen young Men, who are experienced to draw after the Life, by the Advice and Example of whom, and your own diligent Observations and Care, you may come not only to mend one anothers Faults, but also one anothers Judgments.

II. Then choose a well-shap'd Man, one of large Shoulders, of a fair Breast, strongly muscled, full Thighs, long Legs, and of a proportionable height, not too tall nor too short, nor too thick nor too slender, but a Person every ways of an admirable Shape.

III. Let this Exemplar be made to stand in a good Posture, representing some noble Action of the Life, letting the Head turn it self to the right side if the left be shadowed; and contrariwise, making the Parts of the apparent Shoulder somewhat higher than that which is obscured; and the Head, if it looks upwards, leaning no farther backwards than that the Eyes may be seen; and in the turning of it, let it move no farther than that the Chin may only approach the Shoulder; making also the Hip on that side the Shoulder is lowest, a little to stick out; and that Arm foremost, where the Leg is behind, and contrariwise,

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IV. The same you must observe in all four-footed Beasts; and this generally to make the Limbs cross-wise to cohere together; and in the turning of it forward, backward, upward, downward, sideways, ever to counterballance it by the Opposition of other Parts, the right Knowledge of which is a great Step to the Imitation of the Life.

V. This done, let him, whose turn it is to begin, first sketch on the Paper his own Idea's (being fixed in a convenient Place and Light, as in the former Chapter) wherein you must endeavour to make every part to agree with the whole, first, in Form; secondly, in Proportion; thirdly, in Action. After this begin again, running over your Draught, bring it to a Conclusion, as we shall hereafter teach you.

VI. Observing always, that after you have sketch'd your whole Figure, that you choose a Part (which you most desire to finish) to perfect the same, in regard that with the rest stands in a good posture; the Reason is, because Time will not always easily permit to finish or compleat a whole Figure, unless it be with expert Artists; it being much better to perfect a part than to leave the whole imperfect, which as each Practitioner arrives and draws nearer to perfection, he may with so much the more boldness, security, and certitude, attempt the complicating of the whole.

VII. You are also to consider after what manner you would have your Figure to be seen, whether upon even Ground, or from aloft; for accordingly you must make the position of your Exemplar.

VIII. Let the young Artist also, at his Conveniency, sometimes view the Country, and practise upon the drawing of Landships, as much representing Nature (1. in their distance, 2. in their mutual position, 3. in visible aspect) as possible may be: By this means he will come to have a general and compleat Understanding in the Universal Measures of all Things.

IX. In drawing of the Face consider the Circumference thereof, and whether it be round or long, fat or lean, great or small, so that ye be sure in the first place to take rightly the dimensions and bigness of the Face. In a fat Face you must make the Cheeks to swell out, and so make the Face look as if it were square. If it be neither too fat nor too lean, it will be round, for the most part; but if it be a lean Face, the Jaw-bones will stick out, and the Cheeks fall in, and the Face will be long, and thin or slender.

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X. Observe, when you draw the outmost Circumference of a Face, to take the Head and all with it, otherwise you may be deceived in drawing the true bigness of a Face; and then you must judiciously consider and view all the gentle Master-touches, which give the Spirit and Life to a Face, and discover the Grace, Affections and Dispositions of the Mind, wherein lies the Excellency of the Art, and Glory of the Artist.

XI. A smiling Countenance is differenced in the corners of the Mouth, when they turn up a little: A staid and sober Countenance in the Eyes, when the upper Eye-lids come somewhat over the Balls of the Eyes. A frowning Countenance in the Forehead, by the bending of the Eye-brows, and some few Wrinkles between the two Eye-brows about the top of the Nose.

XII. A laughing Countenance is from the universal Composition of the whole Face; so also an angry Countenance, which is discerned by extraordinary frowning. There are also some touches about the Eyes and Mouth, which you must diligently observe, thereby giving a kind of Life and Spirit to your Draught.

XIII. A graceful Posture is a mighty thing to be observed in every Picture, that all things be express'd with proper Actions; to wit, in their true and natural Motions, according to the Life and Spirit of it. In a *King* express *Majesty*, by designing him in such a graceful Posture as may cause the Spectators to behold him with Reverence. A Soldier express in such a Posture as bespeaks the greatest Courage, Boldness, and Valour. Make a Clown in a sordid and clownish Posture. A Servant or Page as one waiting with the utmost diligence. And in all your Draughts make the inward Affections of the Mind to be lively express'd in the outward Actions, Motions, and Gestures of the Body.

XIV. But to attain to the exquisite Knowledge of these things you must diligently observe the Works of the most famous Masters, and strive to imitate their Examples, who of a long time had accustomed themselves to draw all Varieties of Gestures and Postures; as the Actions of Wrestlers, fighting at Cuffs, Stage-players, Fencers, the enticing Allurements of Curtizans, riding the Great Horse, Turnaments, &c. wherein the Motions of the Eyes and Hands, and the Carriage of the whole Body, are exactly to be remarked, if you would in your Drawings express any thing to the Life.

XV. But

XV. But that this may appear the more natural, and not forced, you must observe in your Draught a kind of Carelessness and Looseness, that the Body be not made stiff in any part, but that every Joint may have its proper Bendings, that the Intention of the Figure may not be lame, and the Joints as it were starch'd, but that every Limb may have its proper Freeness and Looseness, agreeable with the natural Life of the Picture.

XVI. That every thing may thus naturally accord, you must often and diligently also observe the Life. Should you draw a Man turning his Head over his Shoulders, you must not turn or wind more than Nature will admit; nor must any other Action be forced beyond, or made to come short of the Limits of Nature, yet it ought to be quickned to the highest pitch. As if you were to draw a Man fighting, either to strike, or avoid the Stroke of his Enemy; in Running, Wrestling, Leaping, &c. be sure you do not so much overdo Nature, as to express a Posture which cannot be imitated with his natural Body.

CHAP. VI.

Of the Imitation of Draughts.

I. **T**He Learner must, by many and often Trials, get a Habit of Imitation; which if it be to be done with the Pen, beware of scratching and making thin and lean Stroaks, but rather broad, which you shall draw from above, downwards; but according to the Shades, some of the Hatches must be sharp, some broad, some unequal, and some equal.

II. Hold your Pen or Pencil somewhat long, (and not so upright as when you write,) seeming as though you laid it straight forward; and if they be Pastils, accustom your self to turn them in your Hand; by this means you will prevent their becoming so soon blunt, and they wearing to a point may serve without scraping the making of a whole Draught.

III. In shadowing of your Draught, you must first begin to do it faintly and smoothly, and straight against the edges of the Light, so that it may look as if it had been dash'd with a Brush-Pencil; and then here and there overshadow it again in the

Chap. 6. *The Imitation of Draughts.* 17

the darkeſt Shades farther out, and adorn it with Hatching; and where any thing more is required, put the ſame in nimbly and clearly by gentle touches, the which will add a great Grace unto your Work.

IV. Doefling (which is a certain beſmeering of the Work) is to be done with Crions of Red or Black Chalk, touching the Draught eaſily all over ſmoothly and evenly with the points thereof, and not with Cotton or the like put up into Quills, as ſome uſe; though that may be done in ſome Caſes, as where one Work is to be brought into another.

V. If Copies be taken (chiefly upon coloured Paper) to make it curious and neat, let the edges of the heightning be ſmoothed a little (not with Cotton, but) with the like coloured Paper rouled up to a ſharp point at one end, and by this means you will take away the ſharpneſs and hardneſs of your edges, and make them look ſweet and pleaſant.

VI. In Performance of theſe things a certain kind of Waſhing is ſometimes neceſſary, performed with Pencils dipp'd in ſome coloured Liquor, and ſo laid upon coloured Paper; and this to be done either through the whole Work, or in a part thereof, to wit, in ſome principal flat Shades, which may be afterwards looſly wrought over with a Pen or Black Chalk, the which will look very pleaſantly.

VII. This Waſhing muſt be firſt done very weak and faint; yet ſmooth (without ſmoothing of it at the edges, except by a new Stroak of your Pencil moiſtened with your Tongue; for much ſmoothing will ſpoil your Work) this firſt Waſhing being dry, go over again with your Work, yet only thoſe Parts where there ought to be a darker Shade; and afterwards again give ſome deeper and harder touches without ſmoothing, the which will very much ſet your Work off.

VIII. Faint Shadows, and Things obſcure, muſt be preſented as faintly as may be, chiefly upon coloured Paper, where the heightning helps you; but beware you go not too often over your Shades, leſt you ſpoil them, by making them too hard and ill-favoured.

IX. In Drawing, whether it be after a Draught or the Life, firſt obſerve the thing in general, in reſpect of the circumferent Strokes; for them are they which bound and contain all the parts of the whole, and without which the particular Parts can never be perfectly diſtinguiſhed, nor repreſent themſelves in their Being: This done, then conſider in like manner the Parts, and ſuppoſing the parts each to be a whole,

you may come to represent the parts of parts, and by the same Means to express the whole of any Draught whatsoever.

CHAP. VII.

Of Drawing the Face of a Man.

I. **I**N drawing of the Face you are first to observe its Motion, whether upwards, downwards, forwards, or sideways; whether it be long or round, fat or lean, great or little.

For if it be fat, the Cheeks will seem to swell; if lean, the Jaw-bones will stick out, and the Cheeks fall in; but if neither too fat nor too lean, it will be for the most part round.

II. Touch lightly the Features where the Eyes, Mouth, Nose, and Chin should stand, (having first drawn the Circle or Oval of the Face) then make a stroke down from that place of the Forehead which is even with the Chin, coming down where you should place the middle or tip of the Nose, and middle of the Mouth, which stroke must be made straight down in a full right Face, but arched or oval in an oblique Face, leaning that way towards which the Face doth turn; then cross the stroke about the middle of the Eyes, either with a straight Line in a right Face, or with a curved, either upwards or downwards, according to the present action or posture of the Face; then make another answerable to that, where the end of the Nose should come; and another for the Mouth, that it be not made crooked.

III. This Cross is difficult to be understood *in plano*; but upon a Face made upon a solid Body, in form or shape of an Egg, the several Variations of the said Cross are most excellently demonstrated; and from hence may the Learner understand all the Alterations of a Face, and thereby draw it all manner of ways, as sideways, upwards, downwards, forwards, backwards, &c. and that only by the motion of the said oval solid, accordingly as in the following Figures you may easily perceive.

IV. Then if the Face look upwards towards Heaven, or downwards towards the Earth, let the Eyes, Nose, Mouth, and Brows look accordingly with it; and now proceed to the placing of the Features.

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V. In a just proportioned Face, the distances, 1. between the top of the Forehead and the Eye-brows; 2. between the Eye-brows and the bottom of the Nose; 3. between the bottom of the Nose and the bottom of the Chin are equal.

VI. In drawing the utmost Circumference of a Face, take in the Head and all with it, lest you be deceived in drawing the true bigness.

VII. Then consider all those chief Touches which give Life to a Face, adding Grace thereto, and something discovering the Disposition of the Mind.

So the Mouth extended, and the corners a little turning up, shews a smiling Countenance; the Eye-brow bending, and the Forehead and top of the Nose between the Eye-brows wrinkled, shews one frowning; the upper Eye-lid coming something over the Ball of the Eye, shews one sober and stayed; with many other touches, which give Life and Spirit to a Face, which in good Prints, by little and little, and diligent Observation you will at last find out.

VIII. The distances between the Eyes, is the length of one Eye in a full Face, but in a three quarter or half Face it is lessened proportionably; and exactly underneath the corners of the Eyes place the Nostrils.

IX. Having given touches where the Eyes, Nose, Mouth and Chin should be placed, begin to draw them more exactly, and so proceed till the Face be finished; and then make the Hair, Beard, Shadows, and other things about it.

X. Be sure to make the Shadows rightly, and be sure not to make them too dark, where they should be faint; for that can never be made light again, and so the whole Face is marr'd.

The Shadows are fainter and lighter in a fair Face, than in a swarthy.

XI. When you have finished the Face, give here and there some hard touches with your Pen where the Shadows are darkest; then come the Ears and Hair, wherein, having drawn the Out-line, draw the principal Curls, or Master-strokes in the Hair, which will be a Guide to you in the lesser Curls, whose Dependance are on them; always make the Curls to bend exactly, according to the Pattern, that they may lie loose, or carelessly, and not as if they were stiff and forced; the Curls being rightly drawn, in the last place strike in the loose Hairs which hang scatteringly out of the Circles.

XII. In forming the Ear, describe an Oval as it were, and proceeding lightly, join stroke to stroke, in such manner as you see in the Figures; so that the Ear may be entirely formed, without digressing from the Bounds of Nature or Art.

XIII. Lastly, having practised a little by Rule, and brought your hand in; in drawing of any thing, first strike the Out-strokes, principal Veins and Muscles lightly, and afterwards shadow them, ever following exquisite Patterns and Prints, which will both encrease your Judgment, and bring Command to your Hand.

C H A P. VIII.

Of Drawing the Extreme Parts.

I. **I**N drawing the Hands, draw not all the Joints, Veins, or other things to appear plainly, but only lightly and faintly, and strike out the bigness of the Hand and the manner of its turning with faint touches, and not with hard strokes.

II. Then that being done right, part the Fingers, according to the Pattern, with like faint strokes; then mark that place where any of the Fingers do stand out from the others, with a faint Resemblance.

III. This done, proceed to draw it more perfectly, making the bending of the Joints, the Wrists, and other principal things, more exactly; and lastly, go over with it again, drawing every small bending or swelling of the Fingers, Nails, Knuckles and Veins, so many as do appear.

VI. Learn by good Prints the just Proportions of the Hands, with their equal distances, observing this Rule, that according as it turns one way or another, to shorten proportionally as they appear to the Eye.

For so much as it turns away from our Eye, so much it loses in proportion, yea sometimes a whole Finger, two, or three, or more, is lost to our Sight, which you must accordingly answer in your Draught.

V. In drawing of the Feet, the same Rules which we even now enumerated, at the first and second Section of this Chapter, are to be understood here.

C H A P.

C H A P. IX.

Of Drawing the whole Body.

I

First begin with the Head, and be sure to give it its just Proportion, answerable to what you intend the whole Body shall be; then draw the Shoulders in their exact breadth, after them the Trunk of the Body, beginning at the Arm-pits, and so drawing down to the Hips on both sides, observing withal the exact breadth of the Waste; lastly, draw the Legs, Arms, and Hands, exactly to your Pattern.

II. But first draw with a Coal, and that very lightly and faintly, drawing nothing perfect (that you may the easier mend it if it be amiss) and then afterwards finish one thing after another as curiously as you can.

III. Let the parallel Sinews, Muscles, Veins and Joynts, be placed opposite one to another in a straight line (as Shoulder to Shoulder, Hip to Hip, Knee to Knee, &c.) for which purpose draw straight cross lines to guide you therein; observing that which way soever the Body turns or bows, these Lines may answer accordingly.

IV. Let all perpendicular Joints, and Parts also, be placed in a right line one under another (as they are in your Pattern) for which end, draw a straight line (if the Body be straight) from the Throat thorow the middle of the Brest and Privities, to the Feet, to which line draw all those particular Points, parallels, that the Body may not appear crooked or awry.

V. In bowings and bendings of the Body, let the extubérance of the outward part be just equal to the compression of the inward part, making all things of an equal proportion, that as opposite parts may be equal (as the Arm to the Arm, Leg to Leg, &c.) so every part may be proportionable to each other, (as the Hand not too big for the Arm, nor the Arm for the Body, nor the Body for the Legs, &c.) only with this difference, that (as the one part may appear fully to the Eye, or the other may turn away either in part or in whole, or be seen side-way) it be made so much less than the other, by so much as it turns away from the Sight.

VI. As you observe a just proportion in bigness, so also in length, that as every opposite part may not be too long one for another, but according to the proposed magnitude: And

in this case, that if the Body be awry, or any ways hid, those parts may shorten accordingly, to what is out of sight.

VII. Observe the just distance of one thing from another, for by that means you will be more exact in your Draught, and in short time perfectly imitate your Pattern or Nature.

VIII. If you be to draw a labouring Man, you must, without any regard of the Season, represent him with raised Limbs, and strong Muscles swelling and standing forth, sweating and burning, especially in such as carry Burthens, draw great Weights, or use vehement Leaping, Walking, Jestings with Weapons, Fencing, and such-like Exercises.

IX. Lastly, But to such as are sleeping, you must be careful to give no such kind of Actions in their lying, as will not in probability give them leave to sleep; for being represented with their Limbs or Bodies supported by their own force, and not by the help of another thing, it shews the Weakness and Indiscretion of the Artist.

CHAP. X.

Of Drawing a Naked Body.

IN Drawing after the Life, as there are Variety of Faces, so no certain Rules can be delivered for the same; yet the following Precautions may be useful.

II. Draw out the Head in an oval, one fourth part for the Hair, one fourth part for the Forehead and Brows, one fourth for the Nose, and the last for the Mouth and Chin.

III. Having drawn out the Head, measure out eight times the length of the Head (the Head making one of the eight Parts) and draw a straight Line from the top of the Head to the sole of the Foot.

IV. One Head's length from the Chin is for the Breast; the next eighth part reacheth to the Navel, the fourth part to the Privities, the fifth part to the middle of the Thigh, the sixth part to the lower part of the Knee, the seventh to the small of the Leg, and the eighth part to the Heel.

V. The Muscles you must observe to draw exactly as they are in the Life; the breadth of the Shoulders is about two measures of the Head, the breadth of the Hips two measures

of

Chap. 10. *Of Drawing a Naked Body.* 23

of the Face; the Arms stretched out are just the length of the whole Figure, the Breasts also accounted; but without the Breasts they are but six.

VI. The Arms hanging straight down reach within a Span of the Knee; the length of the Hand is the just length of the Face.

VII. Observe first to draw the Head exactly, and next, the Shoulders in their just breadth; then draw the Trunk of the Body, and the rest as at the first Section of the ninth Chapter.

VIII. Be sure to place the Joints, Sinews, and Muscles in their natural Places, and also proportionately, in respect of Magnitude, Similitude, and Parts, lest it seem crooked and deformed.

IX. See that every parallel Joint bend moderately, so as to answer in Nature its opposite.

X. Lastly, It will be extremely advantageous to draw very much after the Life, and after good Prints of Anatomy, and Statues and Anatomies made of *Plaster of Paris*, which is the only way to arrive at the perfection of drawing a naked Figure well, and without which indeed you can never expect to be a good Artist. XI. The Picture also ought to be quick, free, and lively; and if you have many of them in one piece, they ought to be so ordered as that they may not seem to be crowded, or to fall offensively, but ordering them gracefully (on the fore ground especially) so to manage the Whole, that the rest of the Figures decline and lessen proportionably and by degrees, both in height, or magnitude and strength, according to their several distances.

C H A P. XI.

Of Shadowing a Naked Body.

I. **T**He Shadows of the Neck, in a Child or young Woman, are very fine, rare, and hard to be seen: In a Man, the Sinews and Veins are expressed by shadowing of the rest of the Neck, and leaving them white: The Shoulder is shadowed underneath; the Brawn of the Arm must appear full and white, shadowed on one side.

II. The Veins of the back of the Hand and the Knuckles are made with two or three hair-strokes with a fine touch of the Pen.

III. The Paps of a Man are shewed by two or three strokes given underneath, in a Woman with an orbicular Shade, somewhat deep; the Ribs retain no Shadow, except you represent one lean or starved.

IV. The Belly is made eminent by shadowing underneath the Brest-Bone and the Flank: The Brawn of the Thigh is shadowed by drawing small hair-strokes from the Hip to the Knee, and crossed again overthwartly.

V. The Knee is to be finely shadowed underneath the Joint; the Shin-Bone appears by shadowing one half of the Leg with a single Shadow.

VI. The Ankle-Bone appears by shadowing a little underneath (as in the Knees) and the Sinews thereof must seem to take beginning from the midst of the Foot, and to wax bigger as they grow nearer to the Toes.

VII. Lastly, The Shadows of the Foot must take place, according as Reason and Occasion requires; for which (as also in all the former Precepts) the having of good Prints will be no small Advantage unto you.

C H A P,

C H A P. XII.

The way and manner of Shadowing.

I. **I**F it be a Surface only, it is best shadowed by drawing Lines either straight or oblique, (according as the Superficies is) through the better half thereof.

II. If it be in a Body, it is a double Shadow, and is used when a Superficies begins to forsake your Sight, as in Columns and Pillars, where it is double darkned, and representeth to the Eye, as it were, the Back-side, leaving that unshadowed to the Light.

III. The treble Shadow is made by crossing over again the double Shadow, and is used for the inward parts of things, as in clefts of the Earth, Wells, Caves, the insides of Pots, Cups and Dishes.

IV. In shadowing, let the Shadow always fall one way, that is, on the same side of the Body, leaving the other to the Light.

So in drawing a Man, if I begin to shadow his Right Cheek, I must shadow the Right part of his Neck, Arm, Side, Thigh, Leg, &c.

V. But if the light side of the Body be darkened by the opposition of some other Body standing between the Light and it, it must receive a contrary Shadow, according as the Light is obscured.

So if three Pillars stand together, that in the midst must receive a Shadow on both sides.

VI. All circular Bodies must have a circular Shadow (by the first Section of this Chapter) according to their form or appearance, and the orbicular Shadow of the Object which casteth it.

VII. Let your Shadow grow fainter and fainter, according to the greatness of the distance from the opacous Body shadowing.

And the Reason is, because all Shadows are pyramidal; in which case, space of place prevails with the Light against the Shadow.

VIII. Where contrary Shadows concur, let the meanest and most solid Body be first served; and in double and treble Shadows,

Shadows, let the first lines be very dry, for fear of blotting, before you cross them.

IX. All perfect Lights receive no Shadow at all ; but being manifest, are only to be made apparent by that Body which receives them, whose Shadow must be according to the efflux of Light ; but the colour of the Light ought to agree with the medium which receives it, whether it be Air, Crystal, Water, Amber, Glass, Transparent-Wine, or the like.

X. Some Artists have used a little too much White, yet with a certain kind of Grace, although their Work has been much lighter than the Pattern in the lightest part of the Body ; but then withal they make the Shadow as much too much in the obscure parts, where the Light fell by reflexion to set forth the decay of Light in the same part of the Body, by this means the Work seems to be much raised, thereby deceiving the Sight.

XI. For the Light which comes to the Eye in a pyramidal form, comes with a blunter and larger angle, and so represents the Object the more evidently, whence comes a wonderful *Eminency* ; the Cause of which is, for that there is much more Shadow than needs in that part where the Light decays most.

XII. So that the visual lines failing, that part comes to the Eye with a more acute Angle, and therefore cannot be seen so perfectly, but seems to fly inwards, and stand farther off.

CHAP. XIII.

Of expressing Passions in the Countenance.

I. **L**ove is expressed by a clear, fair, and pleasant Countenance, without clouds, wrinkles, or unpleasant bendings ; giving the Forehead an ample height and breadth, with majestick Grace ; a full Eye, with a fine Shadow at the bottom of the Eye-lid, and a little at the corner ; a proportionable Nose ; Nostrils not too wide ; a clear Cheek made by shadowing of it on one side ; and a smiling Mouth made by a thin upper Lip, and shadowing the Mouth-line at the corners.

II. *Fear*

II. *Fear* is expressed by making the Eyes look hollow, heavy and downward, thin fall'n Cheeks, close Mouth, and staring careless Hair about the Ears.

III. *Envy* is best deciphered by the only hanging of the Cheeks, and a pale Countenance ; and sometimes by grinning of the Teeth.

IV. Let every Passion be represented according to the outward appearance thereof, as it is in those Persons in whom it reigns ; observing the Rules at the sixth Section of the seventh Chapter.

V. If you design a Perfection in this Art, you must endeavour to chuse out the best Actions for every purpose, in restraining the luxurious Fury of Nature by a deliberate Discretion which you ought to have in the Idea ; by the benefit whereof you will finish your Design with Delight and Contentment, always expressing in each Member a certain hidden resemblance of the principal Motions which affect the Eye and Soul of the Spectators, and merit the chiefest Commendation.

VI. To express a Passion truly, you ought to give every thing and part its proper Motion, or that which best besits your Intention, which is nothing else but the agreement of proportion and form to the nature and matter of the Action or Passion intended, wherein consists the whole spirit and life of the Art, which by Artists is sometimes called the *fury*, sometimes the *grace*, and sometimes the *excellency* of Art ; For hereby you put an evident difference between the *Living* and the *Dead*, the *Fierce* and the *Gentle*, the *Wise* and the *Simple*, the *Sad* and the *Merry* ; and in a word, discover all the several Passions and Gestures which Man's Body is able to perform.

VII. But these things are impossible ever to be exactly done in a Picture, till you have first carefully beheld the Life, that thereby you may come as near the same as possible may be ; to which adding Art withal, you will meet with no Motions so potent which you will not be able artificially to imitate : These things will be the more exactly accomplished, if you be often seeing and continually practising what you have seen. By this means you will unawares attain to a most exact habit of doing well, and lively express all Gestures, Actions, and Passions subject to natural Bodies,

VIII. The Passions of the Mind are certain Motions proceeding from the Apprehension of some moving or powerful Object; now this Apprehension is threefold, *viz.* *Sensitive, Rational, and Intellectual.* From these three there arise three principal Passions in the Mind, *viz.* *Pleasures of the Senses; Moral Vertues or Vices; and a Pious, Religious Life, or Irreligious and Wicked.*

IX. From the particular Passions or Affections of the Mind, as *Love, Hatred, Desire, Fear, Joy, Hope, Sorrow, Despair, Confidence, Boldness, Impudence, Constancy, Fortitude, Timorousness, Valour, Anger, Pleasantness, Humility, Patience, &c.* there arise so many kinds of Actions, exactly to imitate which, you ought to observe carefully the motions of the Body, by which they are outwardly expressed.

X. And so accordingly to distribute and dispose of them in your Picture, as you have observed them in Nature; which if you fail in, you pervert the Order of Nature and of Things; run your self into Confusion, and so lose the Beauty of your Work.

C H A P. XIV.

Of Human Proportion.

I. **T**He length of an upright Body is equal to eight times the length of the Face or Head: The Arm, hanging straight down, reacheth within a Span of the Knee: The length of the Hand must be the length of the Face: The Arms extended must be the just length of the Body.

Whosoever (saith Vitruvius) will proceed in his Works with Judgment, must needs be acquainted with the nature and force of Proportion. For all Designs carry with them so much the more Grace and Beauty, by how much more ingeniously they are proportioned: This being well understood makes a Man not only an excellent Judge of ancient and modern Artists and their Workmanship, but also an admirable Inventer and Performer of rare and excellent things himself. It adds Majesty and Beauty to his Designs, and draws his Invention many degrees on to Perfection.

II. Those Parts of the Body near to the Eye must be made greater and longer than those farther off, (because the Eye judgeth

judgeth so of them) and according to the distance from the Eye, so must you vary from that which is otherwise the real true proportion of those.

It is almost impossible to do any thing in the Art of Proportion commendably, without the Knowledge of Arithmetick and Geometry; wherefore the Knowledge of these Sciences is required as a thing most necessary: For how otherwise should any one understand the exact Measure and Proportion of a Body?

III. To make a Side-way Head.

You must first form an equilateral Triangle, in what position you please, turning the Triangle to make the Face upon one of the three sides, be it which it will, either upwards or downwards, higher or lower, dividing that side into three equal parts; the one to serve from the lower part of the Hair to the lower part of the Forehead; the second, thence to the upper part of the Nostrils; the third, to the lower part of the Chin.

IV. Now having framed these three Lines, draw a little crooked stroak with a Coal, Chalk, or Blacklead Pencil, out of the right line, which may reach from the top of the Forehead unto the Eye-brow, from whence draw the slope line, bending at the end. To make the Nose (either long, short, gross, or thin, as you desire it,) let it end at the second distance where the Nostrils are to end.

V. Then subdivide the remaining third part in the midst, where the Mouth shall be placed for the parting of the upper and under Lips: Then frame the Chin, having respect to the perpendicular Line, that it fall not out of the middle of the Chin, adjoining thereto, the under Chin, down to the Throat-pipe or Gullet.

VI. With the other two dividing lines, (the one from the top of the Forehead downwards, ending in the midst of the back part of the Ear; and the other proceeding upwards from the Chin, ascending till it meets with the superior descending line) guide your self in describing the Ear, taking heed that its Circumference stretch not out too far about the upper part of the Forehead.

VII. Describe a great circular line, by which, from the roundness of the Head, to the nape of the Neck, observing the natural proportion, and form thence downwards the rest of the Neck. Observe also that the tip of the Ear exceeds not the lower part of the Nostril.

VIII. To describe the Fore-right Face.

Form

Form a perfect Oval, which divide in the midst with a line the longest way. (*viz.*) a perpendicular line, which divide into three equal parts, allowing a fourth of one of the three parts for the Hair in the Forehead. So have you the first third part for the Forehead and Hair, the second third part for the Nose, the third part for the Chin.

IX. In the midst thereof must the Mouth be formed, always remembering that the Eyes must be in one line; the cross lines of the Nose and Mouth must always be correspondent to the cross line where the Eyes are placed; the Eyes must be the length of one Eye distant from another, and their inward corners let be exactly perpendicular over the out-side of the Nostrils.

X. To make the Ears, they must be much foreshortned, by foreshortning, *viz.* for that the Eye doth not see their extended latitude; it must be abbreviated or drawn in; and the length of the Ear must be from the Eye-brows to the bottom of the Nostrils; then describe the Neck with the Hair according to their natural situation.

XI. To draw a Head foreshortned.

To do this with Frets, Grates, Squares, or Geometrical Instruments, breeds only a confusion of lines, for that this Face can scarcely be measured by any Rule, unless the whole Body be framed together: In this case therefore make a circular Draught (much like that in the foreright Face) with the aspect upwards or downwards, as in the foreright Head, where the transverse lines are straight, but these are drawn circularly.

XII. If the Head flies upwards, the traced strokes and the divisions must ascend or rise upwards; but if it looks downwards, then they must all decline downwards, with this Caution, that the Ears and Eyes fall not out of their due points, as you may see in the Example.

XIII. In foreshortning you must take things as they appear to the Eye, and not to draw the full proportion of each part, but to shorten all, according to the rate or reason which they are obfuscated.

XIV. So if you would draw a Ship foreright, there can appear but only her forepart (for the rest being hid cannot be expressed:) The like of an Horse looking full in my Face, or a Man lying along; I must here of necessity foreshorten, to express the visual propriety: And in this case your Eye and Reason must be your chief Guide to give the true reason and measure of these appearances, whether in Drawing, Limning, or Painting.

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XV. The use of this foreshortning is to expresse all manner of actions in Man or Beast; to represent many things in a little room; to shew at one view to the Eye and Mind, the whole Body of a Temple, with all its Arches and Pillars, whether the inside or outside, as also the sundry sides of Cities, Castles and Forts, and such-like.

XVI. In every Case you must make Nature the Pattern of all Draughts, so that nothing be expresse'd, but what doth agree and accord with Nature; and that nothing be either forced beyond Nature, nor yet any thing to come short of Nature.

As if in drawing the Picture of a Man, be sure you draw not such a Posture as is impossible for him to imitate with his natural Body.

XVII. Observe this Rule in all Foreshortnings, that you always rather imitate the visible proportions of things, than their proper and natural proportion by measure; for the Eye and Understanding together being directed by the *Perspective Art*, ought to be your Guide in Drawing and Painting.

XVIII. And therefore in all foreshortnings there must be a proportion observed, according to the Judgment of the Eye, that what limbs or parts of any thing do appear, may agree in proportion as well as in foreshortning.

XIX. If you make a Side-face without any prescribed Measure or Triangle; you ought however to consider in your Mind the natural distances and proportions, and by drawing many without a Rule or Limit, you will easily do it by the Eye, and your Hand will draw all things right by custom.

XX. And those first Strokes or Draughts being taken from the Life, and reduced by the Pencil with Colours, you will find it very correspondent and like, and as exact as you can desire it.

XXI. *The Proportion of a Man of ten Faces.*

From the top of the Head to the Soal of the Foot, is divided into ten equal parts. The first distance begins at the top of the Head, and reaches to the root of the Chin: The second from thence to the Throat-pit: The third thence to the parting of the Breasts: The fourth thence to the Navel: The fifth thence to the Privities, which is just the middle of the length of the Body: From thence to the Soal of the Foot are five parts more; whereof two are between the Privities and the Mid-knees, and three more to the Soal of the Foot.

XXII.

XXII. The first of the ten parts which is for the Face, is to be divided into three equal parts: The first beginning at the upper part of the Forehead, and ending upon the upper cross line of the Eye-brows: The second distance reacheth from thence to the bottom of the Nose: The third reacheth to the bottom of the Chin, which is the first and uppermost division. Now in a foreright Face be sure to place the Eyes the length of one Eye distant from another; and the length of one Eye the bottom of the Nose is to be.

XXIII. The breadth of this Body consists also of ten Faces, viz. between the extremities of both the middle Fingers, when the Arms are extended or spread abroad; and it is thus divided: The Hand from the end of the middle Finger to the Wrist, is the length of a Face, (or one of the tenth parts:) From the Wrist to the Elbow a Face and half: From the Elbow to the Shoulder-joint, two Faces: Thence to the Throat-pit, one Face: The Hands have the proportion of one Face: The Nipples must be placed at the distance of a Face and half from each other, equal to the distance between the Wrist and the Elbow.

XXIV. The compass of the Head from the Eye-brows to the Neck behind is double to the length of the whole Head. The compass of the Waist is the distance of three Faces to the diameter thereof, and is all one with the Trunk of the Body. The circumference of the Body under the Arm-pits, and the space between them and the Wrists, answer in a double proportion, and is agreeable to half of the Body.

XXV. *The Measures which are equal between themselves.*

1. The space between the Chin and the Throat-pit is equal to the diameter of the Neck. 2. The circumference of the Neck is equal to the distance of the Throat-pit from the Navel. 3. The diameter of the Waist is equal to the distance between the knob of the Throat and the top of the Head; and that is equal to the length of the Foot.

XXVI. 4. The space between the Eye-lids and the Nostrils is equal to that between the Chin and the Throat-bone. 5. The space from the Nose to the Chin is equal to that from the Throat-bone to the Throat-pit. 6. The distance from the hollow of the Eye-brow, and from the Eye-brow, to the centre of the Eye, is equal to the prominency of the Nostrils, and the space between the Nostrils and the end of the upper Lip.

XXVII. 7. The distance between the top of the Nail of the Fore-finger, and the Joint next the Palm or Thumb, is equal

to the distance between the said Joint and the Wrist. 8. The greater Joint of the Fore-finger is the height of the Forehead.

XIX. 9. The space between that Joint and top of the Nail, is equal to the length of the Nose, from the tip to the Arch above the eyes, where the forehead and the Nose is divided. 10. The two first joints of the middle finger, are equal to the space between the Nose and the Chin.

XX. 1. The first joint of the middle finger whereon the nail grows, is the distance between the and Nose the Mouth. 2. The second joint answers to the first which is equal to the space between the mouth and the chin.

XXI. 3. The bigger joint of the Thum is equal to the length of the mouth. 4. The space between the top of the Chin, and the dint under the lower lip, is equal to the lesser joint of the Thumb. 5. The least joint of each finger is double the length of the Nail.

XXII. 6. The spaces between the middle of the Eye-brows, and the outward corner of the Eyes, is equal to the spaces between the said corners and the Ears. 7. The height of the forehead, the length of the Nose, and the distance of the Nose from the Chin are equal.

XXIII. 8. The breadth of the Hand is equal to the breadth of the Foot. 9. The length of the Foot is equal to the measure round about the instep. 10. Twice the breadth of the hand, is equal to the length thereof.

XXIV. 1. The arches of the Eye-brows are equal to the arch of the upper lip, at the division of the mouth. 2. The breadth of the Nose is the length of the Eye, and are either of them equal to half the length of the Nose. 3. The Navel is in the middle between the Nose and the Knee.

XXV. 4. The space from the top of the shoulder to the elbow is equal to two Faces, and from them to the wrist one and a half. 5. The breadth of the Body at the broadest part of the shoulders is two faces and half, which is also equal to the distance between the elbow and the end of the middle finger. 6. The breadth of the body at the Privities is equal to two faces. 7. The Thighs at the thickest part near the Privities, are the distance of two Faces broad.

XXVI. 8. The thickest part of the Leg is equal to the space between the top of the Forehead and the end of the Nose. 9. The breadth of the back at the Arm-pits is equal to two faces, and so are the hips at the buttocks. 10. The length of the middle

middle finger is equal to the space between its last joynt and the wrift.

XXVII. *The proportions of a young man of nine Faces.*

A slender young body of nine heads, is equal to nine times the space between the top of the head and the end of the chin, that being a ninth part of the length of the whole body. And thence back again to the root of the hair a tenth or eleventh part.

XXVIII. But which way soever you draw it, this space is also divided into three equal parts, whereof the first makes the forehead, the second the nose, the third the chin. However, in a face for the eleventh part, is a tuft of hair, which is usually exprest, so that the forehead becomes lower by a third part, which rule the Ancient *Grecians* always observed.

XXIX. *The proportions of a man of eight Faces.*

First draw a straight perpendicular line of the length you design the Figure, which divide into eight equal parts; the uppermost part of which is the length of the head, in which it behoves you to be very exact, because the whole body must answer in proportion to it.

XXX. That eight part make into an Oval, which divide into four equal spaces; the first shall be for the hair, the second for the forehead, the third for the nose, the fourth from the lower part of the nose to the bottom of the chin. But drawing after the Life, you need not follow this Rule exactly, for nature is extremely various in her Representations.

XXXI. Having drawn the head, there remain seven parts more from the bottom of the chin to the soal of the foot. The distance of the chin to the breasts is the length of the head. The third division reaches to the smallest part of the waste. The fourth to the Privities. The fifth to the middle part of the Thigh. The sixth to the middle part of the Knee. The seventh to the small of the Leg. The eight to the heel and sole of the Foot. In the several parts all the other proportions answer.

XXXII. *The Proportion of a Body of seven Heads.*

The length from the crown of the Head to the sole of the Foot is seven times the length of the head: this is a large Head, and all the Members and Limbs are answerable to it, viz. Strong, Sturdy, and Raised. Yet the Ancient *Grecians* painted only the Goddess *Vesta* with this proportion, it being grave and Matron-like.

XXXIII. But you may give it to any other Goddess, which has any kind of grave, or solid Resemblance, as also to
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the more staid and Ancient sort of Women, to *Sibylls*, Prophetesses and suchlike, whom to draw with a slender and delicate proportion would be a great oversight: As also to draw a Prophet with the proportions of a young man.

XXXIV. To make a Child of Six Heads, you must divide the whole length of the Body into six parts, whereof the Head must be one. To draw a Child of five Heads, you must divide the whole length of the body into five parts, whereof the Head must be one. To figure out a Child of four Heads, you must divide the whole length of the Body into four equal parts, whereof the Head must be one.

C H A P. XV.

Of Drapery.

I. **D**RAW the out-lines of the Garment lightly, and herein be careful, for the whole grace of the picture lies there; then draw the greatest folds first and stroke those into lesser; and be sure they cross one another.

II. Sute your garments to the body and make them bend with the body, according as it stands in or out, straight or crooked, or turns one way or another: the closer the garment fits to the Body, the narrower and smaller must the folds be.

III. All your folds must consist of two lines and no more, which you may turn with the garment at pleasure; shadowing the innermost deeper, the outermost more light; and if the folds be never so curiously contrived, spare not to shadow them (if they fall inward from the light) with a double or treble shadow, as the occasion requires.

IV. The greater folds must be continued through the whole garment, the lesser you may break off and shorten as you please.

V. The shades of silk and fine linnen are very thick and small, which require little folds and a light and rare shadow, commonly but double at most; and so also fine Drapery requires more and sharper folds than coarse.

VI. That part of a garment which fits close to the body must not be folded at all, but only sweetly shaded, to represent the part of the body which lies under it.

VII. Observe the motion of the Wind and Air, for driving loose apparel all one way, drawing that part of the garment first, which lies highest and closest upon the body, before you draw the looser part that flies off from the body, *lest by drawing the loose part of the garment first you should be out, and so place the body crooked or awry.*

VIII. You ought also to examine the nature and disposition of light, especially as it has relation to the Sun, or any bright body; for that colours cannot be seen but in the light; and by the help thereof they appear with a grace.

IX. Suppose *Blue* be equally dispersed through all the parts of a Garment, so that there is no more in one part than in another; yet notwithstanding when it is illustrated by any light, it causeth one kind of brightness in that part where it striketh strongly; another kind of lustre where it strikes more weakly; and another in that part, where it yet shines less.

X. Now to imitate this *Blue*; you must take your Artificial *Blue* colour; and temper it one way to express the natural *Blue* of the Garment: but another way to express it in the light: *viz.* You must mix so much White with your *Blue*, as you find light in that part of the Garment, where the light strikes: more White where it strikes with less; and still in proportion less and less, till you come to the parts where the light shines not.

XI. Where the light shines not but by *Reflection*, there you shall only mix so much shadow with your *Blue*, as shall be enough to express that counterfeit light, loosing it self as it were by degrees; always providing that you make your light and shadow to answer.

XII. The Folds or Plaits ought to run out every way like Branches or Arms from the body of a Tree; and to be so made that one plait may so rise from another, as one Branch or Bough, or one stream of Water, comes out from another, in such sort that there be no part of the Garment, wherein there appear not some of these folds.

XIII. Now these motions should be moderate, gentle, and free, without any interruption, more to be admired for their grace and facility, than for affected pains and industry: and because all sorts of cloths have their several motions, as well as Bodies; it must needs be, that they differ between themselves, according to the things wherein they disagree.

XIV.

XIV. For this cause, there must be more light in fine Cloth, as Sarcenet, Linnen, Cambrick, Cypress &c. in which the plaits are small, raised up, trembling, and as it were sweetly waving, somewhat puffed up, by extending and spreading themselves like a Sail, where the motion receiveth more strength by the Wind, they fall close upon the bare skin, as you may see in Womens Garments, upon whom by reason of their thinness, they fall close upon the parts on that side where the Wind bloweth, but are blown up on the contrary side: The same falls out in Mantles, the loose ends of Girdles and Garters; all which motions more fitly appertain unto the Apparel of Nymphs, Goddesses, &c. in respect of their lightness and airiness.

XV. Gross and dull shadows are found in stiff Cloths where the Plaits are few and gross, so that they are capable but of slow motion, and therefore they sink downwards, and can scarcely fall close to the bare skin, for that their own grossness sustains them; and these motions do mostly appear in cloth of Gold, thick Leather, coarse wollen Cloth, &c. upon which the air can have little or no force.

XVI. Moreover the Plaits or folds must have their motions accordingly as they are managed by the wearer, as under the arm, and under the knee, by opening and stretching out the arm and leg; ever making hard, stiff, and gross folds, without weakness or pliability, in such sort, that by their appearance, the nature and quality of the Garment may be known.

XVII. But *mean motions*, which are neither too gross, nor too slight, are such as appear in the folds of Stuff, and other cloths of fine Wool; and these may easily enough be moved by the air, or become pliable to a mans limbs; and so make not only most sweet and pleasant folds, but follow the bare flesh very well, becoming moveable and nimble, and falling plially about the loins, or any other part.

XVIII. But besides these, there are also other kinds of mixt motions, called turnings and crossings, which are proper unto Damasks, Taffataes, Sattins, Cloth of Gold, &c. in which *folds*, crossing and breaking one another, appear, from the various natures, qualities and conditions of the Drapery: but these things are so to be performed, that they may not savour of an over-affected imitation, without grace or order, to the scandal of the Artift and his designs.

C H A P. XVI.

Of mixed and uncertain Forms.

I. **F**OR the drawing the form of any beast, begin with your lead or coal at the forehead, drawing downward the nose, mouth, upper and nether chop, ending your line at the throat.

II. Then viewing it again where you begun, from the forehead, over the head, ears, and neck, continuing till you have given the full compass of the buttock, then mark out the legs and feet.

III. Viewing it again, touch out the breast with the eminency thereof; Lastly, finish the tail, paws, tongue, teeth, beard, and several shadows.

IV. In drawing Beasts you must be well acquainted with their shape and action, without which you shall never perform any thing excellent in that kind: and here if you draw it in an Emblem or the like, you ought to shew the Landskip of the Country natural to that beast.

V. In Birds begin also the draught at the head, (and beware of making it too big) then bring from under the throat the breast-line down to the legs, there stay and begin at the pinion to make the wing, which being joined to the back line will be presently finished.

VI. The eye, legs and train must be at last, letting always (in birds as in beasts) the farthest leg be shortest; their feathers (as the hair in beasts) must take their beginning at the head very small, and fall in one way backwards in five ranks, greater and greater to the conclusion.

VII. Insects, as flies, bees, wasps, grasshoppers, worms, and such like, are easie to be drawn and not hard to be laid in Colours; in doing these, it will at first be absolutely necessary to have the living pattern before your eyes.

VIII. To draw a flower, begin from the boss tuft or wart in the middle; as in a Rose or Marigold, with the yellow tuft, which being made, draw lines equally divided, from thence to the greatest compass or extent of your flower.

IX.

IX. You may draw them either fully open, or in the bud, and laden with dew, wet and Worms, and then you may draw rudely with the coal or lead the leaves afterwards giving them their veins or jaggedness.

X. To take the natural and lively shape of the leaf of any Herb or Tree.

First, take the leaf that you would have, and gently bruise the ribs and veins on the back-side of it: afterwards wet the side with linseed Oyl, and then press it hard upon a piece of clean white Paper, and so you shall have the perfect figure of the said leaf with every vein thereof so exactly exprest, as being lively coloured it will seem to be truly natural.

C H A P. XVII.

Of Landskip.

I. **L**andskip is that which expresseth in lines the perfect vision of the earth, and all things thereupon, placed above the Horzion, as Towns, Villages, Castles, Promontories, Mountains, Rocks, Valleys, Ruins, Rivers, Woods, Forests, Chases, Trees, Houses and all other Buildings, both beautiful and ruinous.

II. First, Always express a fair Horizon, shewing the heavens cloudy or clear, more or less according to the occasion, and if you express the Sun, let it be either as rising or setting, and as it were behind or over some hill or mountain.

The Moon and Stars are seldom or never depicted, unless it be in representation of twi-light; because all things are supposed to be seen by day.

III. Secondly, If you express the Sun, make his light to reflect upon all the Trees, Hills, Mountains, Rocks, or buildings, shading the contrary side, after which manner also shadow clouds, mists, and the like, making the shadows to fall all one way.

IV. Thirdly, be very careful to augment or lessen every thing proportionably to their distance from the eye, making them either bigger or lesser.

V. In expressing things at large distances, as ten, twenty or thirty miles off; where the object is hard to be discerned, as whether it be Temple, Castle, House or the like, shew no particular signs thereof, or any eminent distinction; but rather as weakly, faintly, and confusedly as the eye judgeth of it.

VI. If Landskips be laid in Colours, the farther you go, the more you must lighten it with a thin and airy blue, to make it seem as if it were afar off, beginning at first with a dark green, so driving it by degrees into a blue, according to the distance.

VII. Make your Landskip to shoot (as it were) away, one part lower than another, making the nearest hill or place highest, and those that are farther off, to shoot away under that, that the Landskip may appear to be taken from the top of an hill.

VIII. Let every thing have its proper motion, as *in Trees* when they are shaken with the wind, making the smaller boughs yielding; the stiffer less bending: *in Clouds* that they follow the Winds: *in Rivers*, the general current, and flashing of the Waters against the boat sides.

IX. *In the Sea*, the waves and other proper agitations, the rowling of the Billows, the tumbling of Vessels up and down; Ships floating, some dipt, some half-drown'd, some standing almost an end, some hid almost with the Waves, through the uncertainty of the Surges, others endeavouring to live.

X. In the motion of Waters falling from an high place, but especially when they fall upon Rocks or Stones, you must make it leaping up into the Air; and sprinkling all about. And lastly, *let every thing* which moveth, whether essentially or accidentally, have its proper representation.

XI. Let your work imitate the season you intend it for.

As if you intend it for a winter piece, represent felling of Wood; sliding upon the Ice; fowling by night; hunting of Bears or Foxes in the Snow; making the Trees every where naked or laden with a hoar frost; the Earth bare without greenness, Flowers or Cattle; the Air thickly Water frozen, with Carts passing over it, and Boys upon it, &c.

XII. Lastly, let every fire have its proper *parerga*, adjuncts, or additional graces, as the Farm-house, Wind-mill, Water-mill, Woods, Flocks of Sheep, Herds of Cattle, Pilgrims, Ruines of Temples, Castles and Monuments; with a thousand such other only proper to particular subjects.

C H A P.

C H A P. XVIII.

Of Diapering and Antique.

I. **D**iapering, is a tracing or running over your work again when you have, as it were, quite done, with damask branches, and such like.

It is used to counterfeit cloth of Gold, Silver, Damask, Velvet, Chamlet and the like, with what branch and in what fashion you please: it is derived from the Greek word διαπεριω, transeo, to pass over, and only signifies a light passing over the same again.

II. If you Diaper upon folds, let your work be broken off accordingly, and taken as it were by the half.

For reason sheweth that the fold covereth something which cannot be seen by reason of it, which if it was drawn out at length would appear plain.

III. Let the whole work be *homogene*; that is, let the same work be continued throughout the whole garment, setting the fairest branch in the most eminent and perspicuous place, causing it to run upwards, for else your work would be ridiculous.

IV. You may either shadow the ground and leave your work white; or shadow your work and leave the ground white; and as you shall please in this kind, your filling may be with small pricks, which will shew very fair.

V. *Antique (ab antes)* are butteresses whereon the building is stayed, as also the outwardmost ranges, used in fore-fronts of houses, in all manner of Compartments, curious Architecture, Armors, Jewels, and Columns.

VI. The form of it is (only for delights sake) a general or irregular composition of men, beasts, birds, fishes and flowers and such like, without either rule or reason.

VII. Lastly, observe the continuation of one and the same work, through the whole piece, without the least change or alteration.

As if it be naked Boys, playing, lying, sitting, or riding upon Goats, Eagles, Dolphins and the like; strings of Pearl, Satyrs, Tritons, Apes, Dogs, Oxen, bearing or drawing Fruits, Branches, or any wild fancy after your own invention, with a thousand such other idle toys; be sure you observe the continuation.

C H A P. XIX.

To take the perfect draught of any Picture.

I. **T**AKE a sheet of fine *Venice Paper*, wet it all over with linseed oyl on one side thereof, which then wipe off as clean as you can ; let the Paper dry, and lay it on any painted or printed Picture, then with a black-lead pen you may draw it over with ease : put this oyled paper upon a sheet of clean white paper, and with a little pointed stick or feather out of a swallow's wing, draw over the stroaks which you drew upon the oyled paper ; so shall you have the exact form upon the white paper, which may be set out with colours at pleasure.

II. *Or thus*, The picture being drawn as before in the oyled paper, put it upon a sheet of white paper, and prick over the drawing with a pen : then take some small coal, powder it fine, and wrap it in a piece of some fine linnen, and bind it up therein loosely, and clap it lightly all over the pricked line by little and little, and afterwards draw it over again once or twice, with pen or pencil.

III. *Or thus*, Rub a sheet of white paper all over on one side with black-lead, or else with vermillion mixed with fresh butter ; lay the coloured side upon a sheet of white paper, then lay the picture you would copy out upon the other side of the coloured paper, and with a small pointed stick or swallows quill, go over all the stroaks of your picture, and it will be exact on the white paper.

IV. *Or thus*, Lay a piece of Lanthorn horn upon the picture, then draw the stroaks of your picture with a hard nibbed pen upon the horn ; and when it is dry, breath upon the horn twice or thrice, and press it hard upon white paper a little moistned.

V. *Or thus*, Take an oyled sheet. (as at the first Section of this Chapter) rub one side of it with lamb-black or lake ; lay it upon a sheet of fair paper with the coloured side downwards, and upon it lay the picture you would copy out, and trace it over with a swallows feather.

VI. *Or thus*, Take fine lake mixed with linseed oyl, and draw with it, instead of Ink, all the out-stroaks of any picture, and other material parts; then wet the contrary side of the Picture and press it hard upon a sheet of paper, and it will leave behind it all that which you drew over.

VII. *Or thus*, Grind Printers black fine, and temper it with water, and with a Pen dipt in it, draw over the out-lines and master stroaks: wet then some white paper with a sponge or the like, and press it hard thereupon; and you shall have the stroaks you drew upon the white paper.

VIII. *Or thus*, Lay the print (the back-side of it) upon a clear glass, or oyled paper, then lay a clean paper upon the print; hold it up against the light, so will you see all the stroaks which you may draw out, and shadow also if you please.

IX. *To take the shape of any Leaf, Herb, or Plant.*

Hold a whole Leaf or Sprig (as of Nettles, Plantane, &c.) in the smoak of Gum Sandrack, Rosin, a Link, or Wax-candle, till it is well blackt, which place between the leaves of a sheet of white paper, and carefully press upon the Leaf with some smooth thing; so shall you have in a moment the print on the paper, (especially the backside thereof) with the very Ramifications of the Fibres dispersed through it. This may be of good use in Travelling, when we meet with strange Plants.

X. *To take the Picture of an Herb, from an old Picture.*

Take Venice Soap, dip it in water, and rub or moisten the old Picture all over, and very well with it: then put upon it a piece of white paper, with other paper over it, and rub hard thereupon, or press them strongly together, and the old Picture will come off exactly upon the white paper.

C H A P. XX.

To extend or contract a Picture keeping the proportion.

I. **E**Ncompafs your picture with one great square, which divide into as many little ones as you please: this done, according as you would have your picture either greater or less, make another square greater or less, which divide into as many equal squares which let be drawn with a black-lead plummet.

II. Take your black-lead pen, and draw the picture by little and little, passing from square unto square (by the example of the pattern) until you have gone all over with it: observing that in what part of the square the picture lies, you draw the like part in the square answerable thereto, till you have finished the whole.

III. Then draw it over with a pen, in which second drawing of it you may easily mend any fault, and shadow it at pleasure.

IV. *Lastly*, When it is thoroughly dry, rub it over with the crum of white-bread, and it will take off all the black-lead stroaks, so will your draught remain fair upon the paper.

C H A P. XXI.

Of Perspective in general.

PΕΡΙΤΙΚΗ in Greek, *Perspectiva* in Latin, the *Art of seeing* in English, is that by which we behold, contemplate, and draw the likeness of all magnitudes, just in form and manner as they appear to the Eye.

II. The matter to be seen or speculated is a magnitude: the manner of speculation is by radiations of Light, either direct, rectified or broken.

III. A magnitude is that which hath form; and it is either lineal, superficial, or solid; that is, either a complication of points, a complication of lines, or a complication of superficies.

IV.

IV. A line is a complication of points; that is (according to Euclid) a length only without either breadth or thickness.

V. A superficies is a complication of lines; that is, a length having breadth without thickness.

For as the continuation of points makes a line; so the couching together of lines makes a superficies: which is only the laying cross wise,

VI. A solid is a complication of superficies; that is, a length and breadth, having depth or thickness.

And indeed it is nothing but the continuation of points upon a superficies either perpendicularly or bending.

VII. The Contemplation of the Object represents the matter to the mind, in the same manner as its outward appearance doth to the Eye.

And from hence comes Judgment where by the Artist is enabled to describe the same in lines, and delineate it, according to its apparent or visual proportions.

VIII. To draw or describe the Appearance in lines is the active part of this Art, whereby the Idea conceived in the mind (by sight and contemplation) is brought to light.

IX. A radiation is a beam of light, conveying the likeness of the thing, to the Eyes, or sight; and the knowledge thereof to the mind or understanding.

And this radiation is twofold, either external from the external light, or intellectual from its being and power.

X. Direct radiations are those which consider the direct or straight beams, which pass between the eye and the object.

And this is the first kind of perspective; and is many times (alone) called the Opticks.

XI. Rectified Radiations are those which consider the reflection of beams, and their shape upon any polish'd body, as on a Globe, Cone, Cylinder, Pyramid, or any regular solid.

And this is the second kind of Perspective; which is called the Art Catoptrica.

XII. Broken radiations are those which consider the breaking of beams, as they are to be seen through a glass or a Crystal cut into several plains or superficies.

And this is the third and last kind of Perspective, which is called the Art Dioptrica.

C H A P. XXII.

Of the Active part of Perspective.

I. **T**He active part of Perspective is either *Ichnographical*, *Orthographical*, or *Scenographical*.

II. *Ichnographia*, is the description of the plain base or bottom of any body or building. Or the Lines or figure on which the Substance stands.

III. And it is twofold, to wit, either *Geometrical* or *Scenographical*.

IV. *Ichnographia Geometrical*, is that which gives the sight of the bottom or base of any body or building.

So a Circle is the base of a Column ; and a square is the base of a Pedestal, and the like ; but this Geometrical Ichnography is not seen in Section, or through a Glass, unless it lies parallel to the base ; and so it makes no Section with it.

V. *Ichnographia Scenographical* is the Appearance of the same base in Section, or through a Glass, erected upright on the same plain, on which the base stands.

And by this the said base is extended in length but contracted in breadth, for so it appeareth to the eye.

VI. *Orthographia*, is the vision of the foreright side of any plain ; to wit, of that plain or superficies which lies equidistant to a right line, passing through the outward or convex centers of both eyes, continued to a due length.

And therefore Perspective Orthographia, is the delineation of the apparent fore-right plain.

VII. *Scenographia* is the description of an oblique plain or other figure, that declines from the apparent or foreright plain ; that is of that plain which makes *Oblique Angles* with the said foreright plain, and the two strait lines imagined to pass thro' the two outward connex points of both your Eyes.

VIII. *The Scenographick vision of any form, body or building is, of that side which declines from, or constitutes an Angle, with the right line, passing from the centers of both Eyes aforesaid : this Artists calls the return of the foreright side.*

VIII.

IX. Now the Difference between the Orthographick and Scenographick vision is this; the Orthographick shews the side of a body or building as it is beheld when the plain of the Glass is placed equidistant to that side: but the Scenographick shews the side of a body or edifice as it appears through a glass raised obliquely to the said side, or making an angle therewith.

CHAP. XXIII.

Of the Subjects to be seen.

I. **T**he Base of any thing is the plain, flat, or floor upon which any solid body, or object is placed, or raised.

II. The *Altitude* or *height* is the perpendicular space of place, between the base and eye, or height of the visual point above the base.

III. The *Visual point*, is a point in the Horizontal line, wherein all the beams of the eyes unite.

Exempli gratia. If you look on a long straight River, the sides of which run parallel, yet by reason of the distance both sides of the River (although it be very broad) will seem to incline, touch and unite with each other in one common Point or Center: and so if you look on a long straight brick-wall the several lays of Brick, and courses of Mortar, will (at a great distance) seem to incline each to other in one common Point or Center; this point reflected on a glass raised upright on the base, is called the *visual point*.

IV. The *Horizontal line* is a line proceeding from the center of the Eye to the visual point, parallel to the Horizon of the Earth.

And this is, in men of ordinary height or stature, commonly about five foot from the ground or base.

V. The *Distance* is the space on the base between the Glass and point in the base which lies directly under the eyes.

VI. The *Section* is a plain of transparent or perlucid matter (as of Glass) raised upright upon the plain of the base standing before you, parallel to a straight line, passing through the convex centers of both Eyes.

Without the knowledge of this Section or Glass it is utterly impossible to understand perspective, or know what it means: Or be able to give a reason for the difference between the Orthographick and Scenographick figures.

VII.

VII. If the Glas is placed near the visual point, and far from the object, the figure which is seen will be very small: and the reason is, because all rays comprehending the Orthographical and Scenographical figures (though more remote from the object) fall into the visual point, as their common center.

VIII. If the visual point be more elevated (though at the same distance) the Scenographick figure or form will appear of a much larger magnitude: because the visual radiations being higher, the various perpendiculars raised on the Section or Glas, cut them in wider distances, because more remote from the Glas.

IX. If the Glas incline to the visual point, the Scenographick vision will be long-wise between the visual point and the object.

And the reason is, because the plain of the Glas heaps in more of the visual Radiations.

X. If the Glas recline from the visual point, the Scenographick figure will appear rounder, and begin to resemble the Orthographick.

XI. But If the Glas is fixed equidistant to the base, or plain the object stands upon; the Scenographick and Orthographick resemblance will be one and the same.

And the reason is, because the form of the figure is lost, or not visible in the Section.

XII. The *Visual Raies*, are those lines which proceed from the visual point, through the Glas, to any point higher or lower than the plain of the Horizon.

XIII. *Diagonals*, or lines of distance, are such as are drawn from the point of distance to any other higher or lower than the Horizon.

XIV. The *Object*, is that form, figure, body or edifice intended to be expressed in *Perspective* proportions.

C H A P. XXIV.

The General Practice of Perspective.

I. **L**et every line which in the Object or Geometrical figure is straight, perpendicular, or parallel to its base, be so also in its Scenographick delineation.

II. Let the lines which in the object return at right Angels from the fore-right side, be drawn Scenographically from the Visual point.

III. Let all straight lines, which in the object return from the fore-right side, run in a Scenographick figure into the Horizontal line.

IV. Let the object you intend to delineate standing on your right hand, be placed also on the right hand of the visual point; and that on the left hand, on the left hand on the same point: and that which is just before, in the middle of it.

V. Let those lines which are (in the object) Equidistant to the returning line, be drawn in the Scenographick figure, from that point found in the Horizon.

VI. In setting off the altitude of Columns, Pedestals and the like, measure the height from the base-line upward in the front or foreright-side; and a visual ray down, that point in the front shall limit the altitude of the Column or Pillar, all the way behind the fore-right side or Orthographick appearance, even to the visual point.

This rule you must observe in all figures, as well where there is a front or fore-right-side, as where there is none.

VII. In delineating Ovals, Circles, Arches, Crosses, Spirals and Cross-arches, or any other figure, in the roof of any room; first draw Ichnographically, and so with perpendiculars, from the most eminent points thereof, carry it up unto the Ceiling, from which several points carry on the figure.

VIII. The center in any Scenographick regular figure is found by drawing cross-lines from opposite angels: for the point where the Diagonals cross is the Center.

IX. A ground plain of squares is alike, both above and below the Horizontal line; only the more it is distant above or beneath the Horizon, the squares will be so much the larger or wider.

X. In drawing a perspective figure, where many lines come together, you may for the directing of your eye, draw the Diagonals in red; the visual lines in black; the Perpendiculars in green, or other different colour from that which you intend the figure shall be of.

XI. Having considered the height, distance and position of the figure, and drawn it accordingly, with side or angle against the base; raise perpendiculars from the several Angles or designed Points in the figure, to the base, and transfer the length of each perpendicular, from the place where it touches the base, to the base on the side opposite to the point of distance, so will the Diametrals drawn to the perpendiculars in the base, by intersection with the Diagonals drawn to the several transferred distances, give the angles of the figure: and so lines drawn from point to point will circumscribe the Scenographick figure.

XII. If in Landskip there be any standing Waters, as Rivers, Ponds, and the like; place the Horizontal line level with the farthest sight or appearance of it.

XIII. If there be any houses or the like in the picture, consider their position, that you may find from what point in the Horizontal line to draw the fronts and sides thereof.

XIV. In describing things at a great distance, observe the proportion (both in magnitude and distance) in draught, which appears from the object to the eye.

XV. In colouring and shadowing of every thing, you must do the same in your Picture, which you observe with your eye, especially in objects lying near; but according as the distance grows greater and greater, so the colours must be fainter and fainter, till at last they lose themselves in a darkish sky colour.

XVI. The *Catoptricks* are best seen in a common looking-glass or other polish'd matter; where if the glass be exactly flat, the object is exactly like its original; but if the glass be not flat, the resemblance alters from the original, and that more or less, according as the glass differs from an exact plain:

XVII. In drawing *Catoptrick* figures, the surface of the glass is to be considered, upon which you mean to have the reflexion; for which you must make a particular *Ichnographick* draught or projection; which on the glass must appear to be a plain full of squares, on which projection transfer what shall be drawn on a plain divided into the same number of like squares;

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squares where though the draught may appear very confused, yet the reflection thereof on the glass will be very regular, proportional and regularly composed.

XVIII. The *Dioptrick* or broken beam may be seen in a Tube, through a Crystal, or Glass, which hath its surface cut into many others, whereby the raies of the object are broken.

For to the flat of the Crystal or Water, the raies run streight; but then they break and make an Angle, the which also by the refracted beams is made and continued on the other side of the same flat.

XIX. When these faces on a Crystal are returned towards a plain placed directly before it, they separate themselves at a good distance on the plain; because they are all directed to various far distant places of the same.

XX. But for the assigning to each of them a place on the same plain, no Geometrick rule is yet invented.

A P P E N D I X.

C H A P. XXV.

Of the Uses of Perspective.

I. *Perspective* then is a Science, or rather an Art which is absolutely necessary to one who would Draw well, Engrave, Etch, Carve, or Paint, and which men of those professions ought not to want; yet they are not to be so wholly subject to its precepts, as to enslave these Arts to its rules.

II. You are to use it when it pleasingly leads you into the beauties of your work, and can be assistant to you in your design, but when those things cease, you are to leave it, lest it leads you to a precipice, or induces you to that which is repugnant to your peculiar Art.

III. *Perspective*, cannot of it self be called a certain rule, but is to be used with judgment, prudence and discretion: for if you perfectly understand it, yet if you practise it, too regularly, tho' you may do such things as may be within the rules of your Art, yet your work will be displeasing to the Sight.

IV. The greatest Painters who have made use thereof, had they rigorously observ'd it in their designations, had much diminished that Glory which they attained to, and which time will give a kind of Immortality to.

V. Such as too closely follow its Precepts, may indeed make things more regularly true, but they will be much wanting of that harmonious excellency, that exquisite beauty, and that Charming Sweetness, which would otherwise have been found in them.

VI. Architects and Statuaries of Ancient times, did not always find it to their purpose; it was not their prudence to trace the Geometrical part so exactly, as the rules of Perspective require.

VII. If you would imitate the Frontispiece of the *Rotunda* as the rules of Perspective require, you would wonderfully err; for the Columns which are at the Extremities, have more in Diameter than those which are in the middle.

VIII. The Cornish of the *Palazzo Farnese*, which looks so beautifully if beheld from below, yet being more nerely viewed, is found to want very much of its just proportion.

IX. In the *Pillar of Trajan*, the highest figures are much greater than those which are below; which by the rules of *Perspective*, should be quite contrary: here they increase according to the measure of their distance.

X. There is a rule which teaches the making of figures in that manner, but it is no rule of *Perspective*, tho' it is found in some books of that Art, and it is never to be made use of, but when it is for our purpose: *viz.* when it may ease the sight, and render the Object more agreeable to the mind.

XI. The *Farnesian Hercules* its Base is not on the level, but on an easy declivity on the advanc'd part; the reason of which is, that the feet of the figure may not be hidden from the sight, but appear more pleasing to the Eye.

XII. And this is the true reason that these Great men have sometimes stept aside from the Geometrical Rules of *Perspective*, not in a Slight or Contempt of the Art, but for the absolute pleasing of the Visive sense.

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C H A P. XXVI.

Measures of Humane Bodies.

I. **T**He face is that which begins at the bottom of the lowest hairs which are upon the fore head, and ends at bottom of the Chin.

II. Some of the Ancients allowed but seven heads or faces to their figures, but the most of them allowed eight : we for the most part allow Ten faces, viz. from the Crown of the head to the sole of the foot.

III. The face is divided into three parts, viz. 1. The Fore-head. 2. The Nose. 3. The Mouth and Chin.

IV. From the Crown of the head to the forehead, is the third part of a face : from the Chin to the Pit between the Collar bones, are two lengths of a Nose.

V. From the Pit between the Collar bones to the bottom of the Brest, is one face : and from the bottom of the brest to the Navel is also one face.

VI. From the Navel to the share-bone or Genitals, is one face : and from the Genitals to the upper part of the Knee is two faces.

VII. The Knee it self contains half a face : and from the lower part of the Knee to the Anckle is two faces.

VIII. From the Anckle to the Sole of the Foot is half a face : The Sole of the Foot is the Sixth part of the figure.

IX. When a mans Arms are Stretched out, it is from the tip of the middle finger of the right hand, to the tip of the middle finger of the left hand, the just length of the whole body.

X. From the one side of the Breasts, to the other side, is two faces : the two uppermost parts of the Teats, and the pit between the Collar bones in a Woman, make an Equilateral Triangle.

XI. The *Humerus*, or Great bone of the Arm, from the Shoulder to the Elbow, is the length of two faces : from the End of the Elbow to the root of the little finger, viz. the *Chirus* and part of the hand is two faces.

XII. From the *Acetabulum* of the Shoulder blade, to the pit between the Collar-bones is one face : the hand also is the length of a face.

XIII. The inside of the Arm, from the place where the Muscle disappears, which makes the Brest, called the *Pectoral Muscle*, to the middle of the Arm, are four Noses.

XIV. From the middle of the Arm, to the beginning of the hand are five Noses : the Thumb, and longest Toe, are each of them a Nose long.

XV. Lastly, as to the breadth of the Limbs, no exact measure can be given ; because the proportions are changeable, according to the Qualities or magnitude of the person, as being fat or lean ; also according to the posture they are in, and the motion of the Muscles ; all which every Artist is to regulate, according to his own Judgment, and as the occasion may require.

CH A P. XXVII.

General Observations.

I. **I**N drawing well, you must endeavour to make your Compositions conformable to those of the Ancients and their Customs, yet having respect also to the present times.

II. Avoid whatsoever has no relation to your Subject, or may be improper to it ; things also having a less relation to it, are not to be put into the principal places ; those being reserv'd for the minutes of the Principal design.

III. In pictures, neither the face, proportion, age, nor Colour, are to be alike in all ; but they are to be as different, as are the true and living Objects.

IV. Your Subject ought to be beautiful and noble, furnished with Delight and Charms elegant and graceful, that it may not be said that the Artist has laboured in Vain ; and so as it may tend to a Perfection or Consummation of Art, so far as relates to that designation ; that it may be as well as excellent,
able

able to instruct and enlighten the Understanding.

V. Your Invention ought to be good, and the Postures of your design agreeable and harmonious, in respect to light, and shadows, which the Colours which are afterwards to be added, taking from each, what may most conduce to the beauty of your work.

VI. The principal part of the Picture ought to appear in the middle of the Piece under the strongest light, that it may be more remarkable than the rest, and not by the other adjacent parts be hid from our sight; yet so as all together may compose but one body, with the Draperie proper for the same.

VII. All the Members or Parts of the figure, are to be combined or knit together with a kind of Harmonie, as the portions of the same part are, that an apparent Chasm may not be made, which will be disgraceful in your work.

VIII. Where there are heaps of Objects, they ought to be distinguished by different postures and motions, which ought not to be alike any more than their parts, nor are they all to be on one side, but set as much as may be in opposition one to another.

IX. Among many figures, if some shew their foreparts, let other some shew their hinder parts, opposing as it were the back or buttocks to the belly.

X. Where also many figures are, let not one side of the piece be void or empty, whilst the other is filled to the borders; but let the parts and matter be so disposed, that both sides may equally participate of the amplitude of the design.

XI. Let your piece not consist of too many figures; for it will be impossible to dispose and introduce them into the work, with such a Grace, as may make the whole beautiful.

XII. Because many dispersed Objects breed confusion, detracting from the work that excellency and pleasingness, which ought to give satisfaction to the beholder.

XIII. But if your work must consist of many figures, you ought to apprehend the whole design in your mind together, that when it is performed, it may appear at first View, as the product of perfect harmony, and natures real work.

XIV. Such parts as are not easy to be seen, and are not natural, and all forc'd actions and motions, also uncomely postures and parts, are wholly to be avoided.

XV. You must also avoid all out lines, and other lines, which are either equal or Parallel, or constitute any pointed or Geometrical figure, whether Triangles, Squares, Quinquangles,

quangles, Hexangles, &c. which by their exactness, or seeming exactness, spoil the natural beauty, and give displeasure to the Eye.

XVI. Nor are you to be too strictly tyed up to Nature, but sometimes you are to give way to flights of Fancy, and your own Genius, by which many times things are added to make the design much more beautiful.

XVII. Yet you ought to imitate the Beauties of Nature, as all the Ancients have done before us: for which purpose the whole Universe is often to be viewed and contemplated on, that you may be furnished with great *Idea's*, with which your work being adorned, they may be as so many Charms upon the senses and understanding of the Beholders.

XVIII. If your piece is but one single figure, it ought to be perfectly finished in all its parts, its drapery sweetly spread over it, the folds large, and following the order and motion of the parts, that they may be seen as it were underneath by the lights and shadows appendent.

XIX. If the parts are too much distant from each other, so as there are void spaces, you are there to place some fold or folds, which are to be deeply shadowed, to constitute a seeming joyning (as it were of the parts.)

XX. The beauty of *Drapery* consists not in the multitude of Folds, nor the beauty of Limbs in the quantity and rising of the Muscles, but rather in their natural Order and simplicity.

XXI. The management of the *Drapery* is to be taken from the Quality of the Persons; if it is of a Clown or Slave, it ought to be concise and short: if of Magistrates, bold, and ample: if of Ladies, Light, Sweet, and Soft.

XXII. Folds are sometimes to be drawn out from hollows and deep shadows, to which you are to give a swelling, that receiving the light, it may as it were extend the clearness to those places where the body requires it, so will you avoid those hard shadowings which are ever ungraceful.

XXIII. In laying the Scene of the Picture, you are to consider the places supposed, the Countries where brought forth, the manner of their Actions, with the Use and Customs belonging to them.

XXIV. You are to follow the order of nature; as in drawing or painting Clouds, Lightning, Sun shine, &c. to place them towards the top of the piece, not towards the bottom; and contrariwise in putting Wells, Waters, Caves, Foundations, &c.

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Chap. 28. *Of Light, Shadow and Colour.* 57

XXV. The lights and shadows of round bodies ought to be lively and strong, but in their turnings they ought to loose themselves insensibly, and confusedly, without a sudden or abrupt precipitation of the Light all of a sudden into the shadow, or the shadow into the Light.

XXVI. But the Passage of one into the other ought to be easy, sweet, and imperceptible, that is, they are to change gradatim, the Light to slide (as it were) into the shadow, and the shadow into the Light.

XXVII. In the same manner, as if you would manage a single head or figure, you must (in conformity to these precepts) draw a heap of figures, composed of several parts.

XXVIII. And where you have several heaps of figures (which ought not to exceed three or four,) you must take heed so to place or separate them from each other, that they may be plainly distinguished by Lights, Shadows, or Colours.

XXIX. And these things are so dexterously to be managed, that you may make the Bodies to appear enlightned by the Shadows which bound the light, and permit it not suddenly to go farther; and contrarily, the shadows may be made evident by enlightning your ground.

XXX. You ought to draw a round body, in the same manner as we behold it in a Convex Mirror, in which the Figures and all other things, are seen to bear out with more Life and Strength, than even in nature it self.

C H A P. XXVIII.

Of Light, Shadow and Colour.

I. **T**He Drawer, Engraver, and Painter, are all to pursue one and the same Intention, and to be under one and the same Conduct; what the Drawer or Engraver, makes round with the Crion or Steel Instrument, the Painter performs with his Pencil; casting behind what is to be made less visible, by Diminution, and breaking of his Colours: and drawing forwards by the most lively Colours, and strongest Shadows, that which is directly opposite to the Sight, as being nearest, or most to be distinguished.

II.

II. If solid and dark bodies are placed on light and transparent grounds, as the Sky, Clouds, Waters, &c. those dark bodies, &c. ought to be more rough, and more to be distinguished than those with which they are encompassed; that being strengthened by the Lights and Shadows, or Colours, they may subsist and preserve their Solidity upon those transparent grounds.

III. In the mean season those light Grounds, as Sky, Clouds, Waters, being clearer and more united, are to be cast off from the sight, to a farther distance.

IV. You must never in one and the same Picture make two equal lights, but a greater and a lesser: the greater to strike forcibly on the middle, extending its greatest clearness on those places of the design; where the principal Figures of it are, and where the Strength of the Action seems to be; diminishing it gradually, as it comes nearer and nearer to the borders.

V. This is evident in Statues set up on high in publick places, their upper parts being more enlightned than the lower; the which you are to imitate in the distribution of Light.

VI. Strong shadows on the middle of the Limbs are to be avoided; lest the abundance of black which composes those Shadows should seem to enter into them, and seem to cut them: rather place those Shadowings round about them, thereby to heighten the parts; making after great Lights, great Shadows to succeed.

VII. On this Account *Titian* said, he knew no better rule for distributions of lights and shadows, than his Observations drawn from a bunch of Grapes.

VIII. Pure White, either draws an object nearer, or sets it off to a farther distance: it draws it nearer with black, and throws it backwards without it: but pure Black (above all other Colours) brings the Object nearer to the Sight.

IX. The light (being altered by some colour) never fails to communicate something of that Colour, to the bodies on which it strikes: and the same effect is perform'd by the *Medium* of the air, thro' which it passes.

X. Bodies which are close together receive from, each other by reflexion, that Colour which is opposite to them: viz. they reflect on each other, their own proper Colours.

XI. If a design is filled with many figures, you must always endeavour a union of Colours, for fear, that being too different, they should incumber the sight by their confusion,
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with the great numbers of their Members, separated by certain folds.

XII. And for this reason, the *Venetians* paint their Draperies with colours which are nearly related to each other, and scarcely distinguish them any other way, but by the diminution of lights and shadows.

XIII. Those parts of a Picture which are placed foremost or nearest to the View, should always be more finished, than those which are cast behind; and ought to be more manifest than those things which are transient and confused.

XIV. Things remov'd to a distance, though they are many, yet ought to be made but one *Mass*, as the leaves on the Trees, a flight of birds, Billovs in the Sea, &c.

XV. Objects which ought to be separated, let them be manifestly so, and that by a small and pleasing difference; but such as ought to be contiguous, let them not be separated: and where two contrary extremities are, let them never touch each other either in Colour or light.

XVI. The various bodies are every where to be of different Airs and Colours, that those which are seated behind may be united together, and those which are seated foremost may be strong and lively.

XVII. In painting a half figure, or a whole one, which is to be set before other figures, you ought to place it nearer to the Eye, and next to the light: and if it is to be painted, in a great place, and at a distance from the Eyes, then you ought not to be sparing of great lights, the strongest shadows, and the most lively colours.

XVIII. But you ought not to put a Meridian light in your Picture, because there are no colours, which can sufficiently express it; but rather a weaker light, such as is that of the morning or evening, whose whiteness is allayed, and the fields are gilded (as it were) by the sun beams; or that which appears after a shower of rain, which the Sun gives thro' the breaking of a Cloud.

XIX. The parts which are nearest to us, and are most raised, must be strongly coloured, as it were sparkling: but the parts more remote from the sight, towards the borders, more faintly touched.

XX. The field or ground ought to be free, transient, light, and well united with colours, which have a friendly agreement with each other; and of such a mixture, that there may be something in it of every colour that composes your work

work: and let the bodies mutually partake of the Colour of their ground.

XXI. Your vvhole Picture ought to be made of one piece, wherein you must avoid as much as you can possibly, to paint drily.

XXII. Your Colours ought to be lively, but not look as if they had been rubbed or sprinkled with meal, *viz.* you are not to let them look pale.

XXIII. When you make a Picture by the life, you are exactly to follow nature, working at the same time on those parts which are resembling to each other. *Ex. gr.* the Eyes, the Cheeks, Nostrils, and Lips; so that you are to touch the one, as soon as you have given a stroke of the Pencil to the other, lest the interruption, and space of time cause you to loose the *Idea* of those parts which nature has produced to resemble the other.

XXIV. Thus by imitating nature, feature for feature, with just and harmonious lights and shadows, and proper colours, you will give to the Picture that liveliness, that it will seem as if it were the living hand of Nature.

XXV. Smooth bodies, such as Crystal, Glass, Gems, polish'd Metals, Stones, Bones, Woods, Japans, things covered with hair (as Skins, the Beard, Head;) also Feathers, Silks and Eyes, which are of a watery nature; and things which are liquid as water; and those corporeal Species which are reflected by them: and all what touches them, or is near them, should be painted and united on their lower parts, but touched above boldly by their proper lights and shadows.

XXVI. Let the parts of the Picture so much harmonize or consent together, that all the shadows may appear as if they were but one: Embrace whatever is assisting to you in your design, but avoid the things which may hurt it.

XXVII. Do not so much as touch with your Crion, Pencil, or Graver, till you have well considered your design, and have fixed your out lines, and till you have present in your mind a perfect *Idea* of your work.

XXVIII. By the help of a Looking Glass, you may be assisted in many beauries, which you may observe from Nature; as also by those objects which you may see in an Evening, where you have an ample field, or large prospect.

XXIX. Those things which are painted to be seen in little or small places, must be very tenderly touched, and well united by gradual approaches and colours; the degrees of which ought to be more different, more unequal, more strong

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Chap. 28. Of Light, Shadow and Colour. 61

strong and vigorous, as the work is more distant.

XXX. If the Picture is to be placed where there is but little light, the colours ought to be very clear; but if it is strongly enlightned or in the open air, the colours ought to be very brown.

XXXI. Large lights are to be painted the most nicely that may be, and you must endeavour to loose them insensibly, in the shadows which succeed them, and encompass them about.

XXXII. The Eye is to be satisfied in the first place, even against and above all other reasons, which may beget difficulties in the Art, which in it self has none; the compass and design ought then rather to be in your Eyes and in your mind than in your hands.

XXXIII. Avoid objects which are full of hollows, which seem broken in pieces, or refracted, which are little, and are separated, or in parcels, things which are rude, uneven, ill coloured, and are displeasing to the Eye; or which are partly coloured, and have an equal force of light and shadow.

XXXIV. You ought also to avoid all things which are obscene, impudent, cruel, poor and wretched, fantastical or unseemly; things which are sharp and rough to the feeling; and all things which corrupt their natural forms, by the confusion of their parts, and are entangled in each other.

XXXV. But you are to chuse those things which are beautiful, even in the utmost degree of Perfection, which have something of magnanimity or greatness in them, and whose Scetches or outlines will be noble, and magnificent; which will be distinguished, pure, and without alteration, clean, and united together, composed of great parts, yet those but few in number and distinguished by bold colours, and such as are related, and are harmonious to each other.

XXXVI. Tho' nature is to be followed in many things, and in most, yet beginners are not at first to be too sedulous in following nature, lest their works seem starcht or Stiff, but they ought to begin with a certain carelesness, freedom, and boldness, which will accelerate, all their after endeavours, in order to the attaining the perfection of their Art.

XXXVII. In the mean time, they ought to learn proportions, the connexion of Parts, and fixing the Scetches or out lines: they ought often to view and Examine admirable Originals, and all the insensibilities and sweetneses of the Art,

Art which will be attained rather by a skilful Master, than by severe and only Practice.

XXXVIII. After you have done some part of your work, let it lye by you for some days or weeks, without looking on it, and then view it again; so by that intermission, you may chance to discover your faults, or the Errors or Excellencies of your piece, which you may either mend, avoid, or advance, according to your skill and discretion: it will be in vain for you continually to pore over your work, and dull your Genius, in spite of nature, and your present inclination.

XXXIX. As you walk abroad in the Streets, Fields, and Country, observe how nature plays and is disposed, and the particular Airs, of the various Objects, their postures, motions, and passions, and with what unconcern'd freedom they display themselves.

XL. And whatever you judge worthy to be observed (tho it is but the Image or remembrance of a Country Clown leaning with his brest upon his Club or Staff, as he is talking unconcernedly with his neighbour in the street or field) whether it be upon the Earth, or in the Air, in the fire, or upon the waters, whilst the Species or *Idea's* of them are fresh with you, record the same, and so replenish your Imagination and Judgment.

XLI. Objects of divers natures which are aggroup'd or combin'd together, are agreeable and pleasant to the sight; as also such things as are perform'd with freedom and ease; because they seem to be full of Spirit, and to be animated with heat and fire.

XLII. But those things are not to be attained to, till after a long exercise and practice, and till they are thoroughly weighed and considered in your Judgment and understanding; tis an art to conceal from the beholders, the labour and pains you have taken.

XLIII. If you would prove excellent in your Mystery, you must aim at ready apprehension, discerning Judgment, Inclinations to learning, a noble heart, sublime sense, fervor of Soul, and a Greatness of Mind; to which add, youth, diligence, competency of fortune, a skilful Master, and a good affection to the Science, without which, it will be impossible for you to attain to any Excellency therein, or arrive to the Honour and Glory of your Predecessors, who with indefatigable labour, pains and Industry, have brought the Art to its perfection.

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C H A P. XXIX.

Terms of Arts Explicated.

I. *Air*. The *Air* of a figure or Picture, is taken for its *Look* or *Appearance*, in respect to its *Mode*, *Sight*, *Light*, *Shadowing*, and *disposition* of the same.

II. *Antique*. It signifies the *Sculpture*, *Graving*, *Architecture*, and *Paintings* of the *Ancients*, made in the *Times* of the *Ancient Greeks* and *Romans*, from the time of *Alexander the Great*, to *Phocas Imperator*, under whom the *Goths* and *Vandals* ravaged and spoiled all *Italy*. See *chap. 18. Sect. 5.* foregoing.

III. *Aptitude*. It is said to come from the *Italian* word *Attitudine*, and signifies the *mean* or *Posture*, and *Action*, that any figure is represented in, or is capable of.

IV. *Aqua fortis*. It is a strong water, or Spirit made of *Vitriol* and *Nitre*, of great *Medical* and *Chymical Use*; but here of service chiefly for *Etching* *Brass* or *Copper plates*. See the making thereof in *lib. 2. cap. 7. Sect. 18. & 19.* following.

V. *Brush Pencil*. It is of use to cleanse the work, wipe off dust, and strike colours even, &c.

VI. *Burnisher*. It is an *Iron* used by *Engravers*, to rub out *Scratches* and *Specks*, or any thing which may blemish the work; and to make strokes or lines graved too deep, to appear fainter and smaller, by rubbing them over therewith.

VII. *Cartoon*. It is a *Design* made of many sheets of *Paper* pasted together, in which, the whole *Story* to be painted in *Fresco* or otherwise, is all of it first exactly drawn.

VIII. *Colouring*. It is one of the *Parts* of *Painting*, by which the *Work* or *Piece* receives its *Tincture*, *Complexion*, *Lights*, *Shadows*, and *Beauty*.

IX. *Chiaro Scuro*. It is twofold in *Painting*. 1. When there are only two colours used. 2. It is the *Artful disposition* of *Lights* and *Shadows*.

X. *Contouer*. The *Contouers* of a body, are the lines which environ it, and constitute its *superficies*.

XI. *Crions*. They are *Pastils*, or dry *pencils*, made of several *Coloured Pastis*, to draw withal upon coloured paper or

or parchmennt. See their various kinds and ways of making in *lib. 1. cap. 2. sect. 8. ad 15.*

XII. Compasses. They are a brass Instrument, made commonly with Steel points, to take in and out ; that Ink, black, or red Lead, may be used at pleasure : they are chiefly of use to measure a distance, or strike a Circle, or portion of a Circle, where you would be exact.

XIII. Design. It signifies, 1. The just measures, Proportions, Scetchings, and outward forms that a figure or picture (taken from nature) ought to have. 2. The whole Composition of a piece of Painting ; from whence, it is commonly said, *There is an excellent design in such a Piece.*

XIV. Distemper. It is the Exact mixing of Colours, one with another, or with Gum : the difference between that and *Miniature* is, this latter uses only the point of the Pencil ; the former uses the Pencil in its full body.

XV. Drapery. It is used generally for all sorts of Clothing, with which Figures and Pieces are adorned, in the Modes and Air of its fallings, foldings, and disposition.

XVI. Drawing. It is the first Art, and the beginnings or first part of the Art of Painting, without which, nothing in this Mystery could be attained to.

XVII. Draught. It is the Copy of some *design* to be engraved, limned, or painted.

XVIII. Etching. It is an artificial way of Engraving upon Brass or Copper plates, by the help of *Spirit of Nitre*, or *Aqua fortis* : of which, see farther, in the following Book.

XIX. Easel. It is an Instrument or Frame made of Wood, much like a Ladder, with sides flat, and full of holes, to put in two pins, to set your work higher or lower at pleasure, for the *Ease* of the Artist, whence doubtless came the Name on the back side ; there is a stay, by which it may be set more upright or sloping. See *lib. 3. cap. 2. sect 3.*

XX. Figure. It is a general word, but here is taken for any Engraved, Drawn, or Painted Object : but in *painting* it is mostly taken for *Humane Shape and Proportion.*

XXI. Fresco. It is a kind of *Painting*, where the Colours are applied upon fresh Mortar, that they may incorporate with the Sand and Lime.

XXII. Festoon. It is a singular Ornament of Flowers, and such like, which are put upon the borders and Decorations of large Pieces of engraved works or Paintings.

XXIII. Grotesk, or Grotesco. It is a kind of *Painting* found underground in the Ruines of *Rome* : but with us, it

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now signifies a sort of Painting, which gives odd or strange figures of Birds, Beasts, Serpents, Insects, Herbs, Leaves, Flowers, Fruits, &c. mixed together and continued in one Ornament or Border.

XXIV. *Graving*. It is an Art which teaches to transfer any figure, piece, or design upon Brass, Copper, Iron, Gold, Silver, Stone, or Wood, by the help of sharp pointed Steel Instruments.

XXV. *Graver*. An Instrument to grave withal, and it is of three sorts, viz. Round pointed, Square pointed, and Lozenge pointed. See *lib. 2. cap. 1. sect. 3.* following.

XXVI. *Gruppo*. It is a combination or knot of figures together either in the middle or sides of a Piece of Painting. Of these Gruppo's, *Carache* would not allow above three, nor above twelve figures for any piece.

XXVII. *History-painting*. It is the Joyning of many figures in one Piece, to represent any action of the Life, whether True or Fabulous, accompanied with all its Ornaments of Landskip and Perspective.

XXVIII. *Ichnographie*. It is a simple description of the plain base or bottom of any body or building; Or the Platform in lines or figure, upon which the body of a building stands.

XXIX. *Kromatick* or *Cromatick*. It is that which the Latins call *Pictura*, and we in English the *Art of Painting*, and consists chiefly in *Drawing*, *Engraving*, *Etching*, *Limning*, *Colouring*, and *painting in Oyl*.

XXX. *Landskip*. It is the design of expressing in figures, the perfect vision of a Country, and all things placed thereon, as the *Horizon*, *Towns*, *Villages*, *Castles*, *Promontories*, *Mountains*, *Rocks*, *Vallies*, *Ruins*, *Rivers*, *Forests*, *Woods*, *Clofas*, *Trees*, *Houses*, and all other *accidents* attending the same.

XXXI. *Manner*. It is the habit of a *Painter*, not only of his *Hand*, but of his *mind*, viz. his way of *Exposing* himself in the three principal Parts of *Painting*, to wit, *Invention*, *Design*, and *Colouring*: It answers to *Stile* in Authors; for a *Painter* is known by his *Manner* or *Mode*, as an *Author* by his *Stile*; or a *Mans hand* by his *Writing*.

XXXII. *Model*. It the figure of the *Design*, which a *Painter* works by; and it is either according to *Nature*, or otherwise: but Generally it signifies that which *Architects*, *Carpenters*, *Joyners*, *Painters*, and *Sculptors*, frame or make to guide themselves by in performing their *Designs*.

XXXIII. *Minature*. It is the drawing a Great Figure or Piece, in small; as the making the figure of a mans Head, which is in a whole sheet of Paper in the bigness of an inch,

or inch and half, the bringing in of a Church, Palace, Castle, Fort, Field, or COUNTRY, into the bigness of an Inch, two, or three : but this is best performed by the help of *Diminishing Glasses* ground to an Exactness ; the best of which kind are made by Mr. John Yarwell, living at the *Archimedes* and *three golden Prospects* in *Ludgate street, London.*

XXXIV. *Mezzo-Relievo.* It is where the Figures rise up, but not above half of them is seen ; the rest being supposed within the Marble, Stone, or Wood.

XXXV. *Mezzo-Tincto.* It is a Picture made half black, or with no other Colours but black and white : but now it is taken for a new Method of Transferring a design or picture upon a brass or Copper plate, by the help of an Engine or Instrument made for this purpose, which makes the polished plate, every ways minutely rough ; upon which, the Design or Figure being drawn with Chalk, and a sharp *Stiff*, by the help of a *Burnishing Iron*, the whole design according to its lights and shadows (burnishing where you would have the light strike ; and that more or less, as you would have the light stronger or fainter, you will have with little labour and trouble the whole piece transferred upon the Plate, with an admirable deal of Accuracy and Sweetness.

XXXVI. *Nudity.* It is any naked Figure of Man or Woman : but most commonly of a Woman : when we say, *It is a Nudity*, we mean, *It is the Figure of a naked Woman.*

XXXVII. *Opticks.* They are the Art of seeing rightly, and consist of three parts : 1. *Opticks*, specially so called ; are the Vision or Appearance of any visible Object, whether *Animate* or *Inanimate* by Direct Radiations, or beams of Light ; and these are the Direct or Streight beams, which pass between the Eye and the Object. 2. *Catoptricks*, which are reflected Radiations, or Beauty upon any polished body as Globe, Prism, regular solid, Looking-Glass, &c. 3. *Dioptricks*, which are broken Radiations or Beams, as they are to be seen thro' a Glass or Crystal, cut into several plains or superficieses.

XXXVIII. *Orthographie.* It is a rectangular Vision of the fore-right side of any plain, or upright building : where if a straight line passes from your Eye to any part of the said plain or building it makes with the said plain or building four right Angles, *viz.* two upwards and downwards from the said line, and the like two on the right and left hand of the said line.

XXXIX. *Pallet.* It is a flat, thin, smooth piece of Wood (either Walnut-tree, or Pear-tree) about twelve Inches long, and ten inches broad, almost Oval, at the narrowest end of which

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which is made a hole to put in the Thumb of the left hand and near to that a circular Notch in the edge thereof, that so you may hold it in your hand: its use is to temper your Colours upon.

XL. *Pastils*. They are made of various coloured Pastes or Clay, and are the same with *Crions*.

XLI. *Pencils*. They are made either of black or red Lead, shaved to a sharp point, or of hair, and are of several bignesses, from a *Pin*, to the bigness of a *Finger*, and called by several Names, as Ducks Quill fitch'd, and pointed; Goose Quill fitch'd and pointed; Swan's Quill fitch'd and pointed; Jewelling Pencils; Brush Pencils; some in *Quills*; some in *Tin Cases*; and some in *Sticks*.

XLII. *Parallel-lines*. They are such lines, (whether straight or crooked) as are every where equally distant from another.

XLIII. *Pentagon*. It is a Geometrical plain figure of five equal Sides; and five equal Angles.

XLIV. *Polygon*. It is a plain Geometrical Figure, consisting of many Sides and Angles; at least exceeding four, as a Hexagon, Heptagon, Octagon, Nonagon, Decagon, &c.

XLV. *Perpendicular*. It is a falling Line, which falls upon another Line, or a Plain at right Angles on each side the line, and round about the Plain.

XLVI. *Pedestal*. It is a Square Body, or Foundation upon which a Column is to be placed.

XLVII. *Pilasters*. They are Square Pillars, which usually stand behind Columns, to bear up Arches.

XLVIII. *Print*. It is the Impression of an engraved Plate of Brass or Copper, or a Cut or Carved piece of Wood, upon Paper, Parchment, Silk, or Linnen Cloth, representing some Piece that it had been graved after.

49. *Quadrat*. It is a figure of 4 equal Sides, & 4 equal Angles.

L. *Quadrant*. It is the fourth or quarter part of a Circle; but is chiefly taken for a *Mathematical*, or *Astronomical* Instrument.

LI. *Relievo*. It is properly any Embossed *Sculpture*, which rises from a Flat *Superficies*. It is said likewise of *Painting*, that it has a Great *Relievo*, when it is strong, and that the figures appear round, as it were, out of the Piece or Plane.

LII. *Relievo-Basso*, or *Basso-Relievo*. It is, when figures are little more than *Designed*, and do rise but very little above the Plain: and such are those Figures of the Ancients, which they placed about their Cups and other Vessels.

LIII. *Section*. It is a plain of perlucid or transparent matter (as of Glass) raised upright upon the plain of the Base stand-

ing before you, parallel to a straight line passing thro' the Convex center of both Eyes.

LIV. Scenographie. It is the description of an Oblique upright, inclining, or reclining plain, declining from the Orthographic Vision, or fore-right plain, viz. of that plain which makes Oblique *Angles*, with the said fore-right plain, and the two straight Lines imagined to pass thro' the two outward convex Points of both your Eyes.

LV. Size. 1. *Gold Size.* Take prepared yellow Oker, what you please, add to it a little prepared Oil, and grind them together, till they are fine, even as the Oil it self. Note, you must put no more Oil to the Oker, than may make it of a good stiffness to work well; and to be of such a body, that the Leaf-Gold being laid on; it may settle it self Smooth and Glossy. See lib. 3. cap. 16. sect. 33. following, 2. *Size-Water.* Take Glew, Steep it all Night in Water; then melt it over the fire, to see that it be neither too strong nor too weak, and so let it cool: if it is too stiff when Cold, put in more water; but if too weak more Glue.

LVI. Stiff. It is a needle like Instrument used to draw thro' all the outmost Lines or Circumferences of the Print, Pattern, or drawing, you Etch after.

LVII. Shortning, or Fore-shortning. It is when a Figure seems of a greater quantity than really it is: as if it should seem to be three feet long, when it is but one.

LVIII. Schizzo. It is the first Attempt or Design of a Painter, expressing his fancy upon any Subject. These Schizzo's are commonly reduced into Cartoons in Fresco Painting: Or Copied and enlarged in Oil painting.

LIX. Stucco-Work. It is a Piece made of figures of all sorts, in a kind of Plaister, and used to adorn a Room, either under the Cornishes, or round the Ceiling; or in Compartments or Divisions. If it is on the Ceiling it self, it is commonly called Fret-work.

LX. Tinto. It is when a thing is done only with One Colour, and that generally Black.

LXI. Varnish. It is a thick sort of Liquor made by dissolving certain Rosins, or Gums, as that of Juniper, Benjamin, Mastick, Olibanum, Rosin, Gum-Lack, &c. in Spirit of Wine, or Linseed Oil (according to the use you have for it) for the Preserving and Adorning of Timber, Boards, Wooden-Works, &c. or to imitate and represent the natural forms of several bodies Animate and inanimate, as the several and various productions of Vegetables, Minerals and Animals.

Explicit liber primus.

POLYGRAPHICES

LIBER SECUNDUS.

OF ENGRAVING, ETCHING, and LIMNING.

Shewing the Instruments belonging to
the Work ; the Matter of the Work,
the way and manner of performing
the same ; together with all other Re-
quisites and Ornaments.

CHAP. I.

Of Graving, and the Instruments thereof.

I. **G** Raving is an Art which teacheth how to transfer
any design upon Copper, Brals, or Wood, by
help of sharp pointed and cutting Instruments.

II. The chief Instruments are four, 1. Gravers, 2. An Oyl
stone, 3. A Cushion, 4. A Burnisher.

III. Gravers are of three sorts, round pointed, square
pointed, and Lozenge pointed. *The round is best to scratch with-
al : the square Graver is to make the largest stroaks : the Lozenge
is to make stroaks more fine and delicate ; but a Graver of a
middle size betwixt the square and Lozenge pointed, will make*
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the stroaks or hatches shew with more life and vigour, according as you manage it in working.

IV. The Oyl-stone is to whet the Gravers upon, which must be very smooth, not too soft, nor too hard, and without pin-holes.

The use is thus: Put a few drops of Oil Olive upon the stone, and laying that side of it, which you intend shall cut the Copper, flat upon the stone, whet it very flat and even, and therefore be sure to carry your hand stedfast with an equal strength, placing the forefinger firmly, upon the opposite side of the Graver. Then turn the next side of your Graver, and whet that in like manner, that you may have a very sharp edge for an inch or more. Lastly, turning uppermost that edge which you have so whetted, and setting the end of the Graver obliquely upon the stone, whet it very flat and sloping in form of a Lozenge (with an exact and even hand) making to the edge thereof a sharp point. It is impossible that the work should be with the neatness and curiosity desired, if the Graver be not, not only very good, but also exactly and carefully whetted.

V. The Cushion is a leather bag filled with fine sand, to lay the plate upon, on which you may turn it every way at ease.

You must turn your plate with your left hand, according as the stroaks which you grave do turn, which must be attained with diligent care and practice.

VI. The burnishing Iron is of use to rub out scratches and specks or other things which may fault your work in the plate; as also if any stroaks be graved too deep or gross, to make them appear less and fainter by rubbing them therewith.

VII. To make your Gravers.

Provide some cross-bow steel, and cause it to be beaten out into small rods, and softened, then with a good file you may shape them at pleasure: when you have done, heat them red hot, and straight dip it into Soap, and by so doing it will be very hard: where note, that in dipping them into the Soap, if you turn your hand never so little awry, the Graver will be crooked. If your Graver be too hard, take a red-hot Charcoal and lay the end of your Graver upon it till it begins to wax yellowish, and then dip it into tallow (some say water) and it will be tougher.

VIII. Have by you a piece of Box or hard wood, that after you have sharpened your Graver, by striking the point of it into the said Box or hard wood, you may take off all the roughness about the points, which was caused by whetting it upon the oyl-stone.

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IX. Lastly, take a file and touch the edge of the Graver therewith; if the file cut it, it is too soft, and will do no good: but if it will not touch it, it is fit for your work.

If it should break on the point, it is a sign it is tempered too hard; which oftentimes after a little use by whetting will come into a good condition.

CHAP. II.

Of Polishing the Copper Plate.

I. **T**ake a plate of Brass or Copper of what bigness you please, and of a reasonable thickness, taking heed that it be free from fire-flaws.

II. Beat it as smooth as you can with a hammer, and then rub it as smooth as you can, with a pumice-stone void of Gravel (lest it search it, and so cause as much labour to get them out) and a little water.

III. Then drop a few drops of oyl Olive upon the plate, and burnish it with your burnishing Iron; and then rub it with Charcoal made of Beech wood quenched in Urine.

IV. Lastly, with a roul made of a piece of a black Felt, Castor, or Beaver, dipt in oyl Olive, rub it well for an hour, so shall your plate be exactly polished.

CHAP. III.

Of holding the Graver.

I. **I**t will be necessary to cut off that part of the knob of the handle of the Graver which is upon the same line with the edge of the Graver; thereby making that lower side next to the plate flat, that it may be no hindrance in graving.

II. For working upon a large plate, that part of the handle (if not cut away) will so rest upon the Copper, that it will hinder the smooth and even carriage of your hand in making your strokes, and will cause your Graver to run into your Copper deeper than it should do. This done.

III. Place the knob at the end of the handle of the Graver in the hollow of your hand, and having extended your fore-finger towards the point of the Graver, laying it a top, or opposite to the edge which should cut the plate; place your thumb on the one side of the Graver, and your other fingers on the other side, so as that you may guide the Graver flat and parallel with the plate.

IV. Be wary that your fingers interpose not between the plate and the Graver, for they will hinder you in carrying your Graver level with the plate, and cause your lines to be more deep, gross and rugged, than otherwise they would be.

CHAP. IV.

Of the way and manner of Engraving.

I. **H**AVING a Cushion filled with Sand about nine inches long and six broad, and three or four thick, and a plate well polished; lay the plate upon the Cushion, which place upon a firm Table.

II. Holding the Graver (as aforesaid) according to Art, in making straight stroaks be sure to hold your plate firm upon the Cushion, moving your hand, leaning lightly where the stroak should be fine; and harder where you would have the stroak broader.

III. But in making circular or crooked stroaks, hold your hand and Graver, stedfast, your arm and elbow resting upon the Table, and move the plate against the Graver; for otherwise it is impossible to make those crooked or winding stroaks with that neatness and command that you ought to do.

IV. Learn to carry your hand with such a slight, that you may end your stroak as finely as you begin it; and if you have occasion to make one part deeper or blacker than another, do it by degrees; and that you may do it the more exactly, observe that your stroaks be not too close, nor too wide.

For your more exact observation, practice by such prints which are more loosely shadowed, lest by imitating the more dark, you should not know where to begin or end.

Chap. 5. *Of the Imitation of Copies or Prints.* 73

V. After you have graved part of your work, it will be needful to scrape it with the sharp edge of a burnisher or other Graver, carrying it along even with the plate, to take off the roughness of the strokes; but in doing it, beware of making scratches.

VI. And that you may the better see that which is Engraven, with the piece of Felt or Castor (at the fourth Section of the second Chapter) dipt in oyl rub the places graven.

VII. Lastly, whatsoever appears to be amiss, you may rub out with the burnisher, and very exactly polish it with your piece of Felt or Castor and oyl; which done, to cleanse the plate you may boil it a little in Wine-vinegar, and rub it gently with a brush of small Brass-wire or Hogs bristles.

C H A P. V.

Of the Imitation of Copies or Prints.

I. **H**AVING a piece of Bees wax tyed up in a fine holland rag, heat the plate over the fire, till it may be hot enough to melt the wax; then rub the plate with the wax tyed up in the rag, till you see it covered all over with wax, (which let be very thin:) if it be not even, heat it again by the fire, and wipe it over gently with a feather.

II. If you would copy a printed picture, to have it print off the same way; then clap the print which you would imitate with the printed side next to the plate; and having placed it very exactly, rub the backside of the print with a burnisher, or any thing that is hard, smooth and round, which will cause it to stick to the wax upon the plate: then take off the print (beginning at one corner) gently and with care, lest you tear it (which may be caused also by putting too much wax upon the plate) and it will leave upon the wax the perfect proportion in every part.

Where note, if it be an old picture, before you place it upon the wax, is will be good to track it over in every limb with a black-lead pencil.

III. But if you would have it print the contrary way, take the dust of black-lead, and rub the backside put upon the waxed plate; and with your needle or drawing point, draw all the

the out-lines of the design or print, all which you will find upon the wax. This done.

IV. Take a long Graver either Lozenge or round (which is better) very sharp, and with the point thereof scratch over every particular limb in the out-stroke; which done, it will not be difficult to mark out all the shadows as you Engrave, having the proportion before you.

V. Lastly, for Copies of Letters, go over every letter with black-lead, or write them with ungum'd Ink, and clap the paper over the waxed plate as before.

See Chap. 9. Sect. 20. ad 25. following.

CHAP. VI.

Of Engraving in Wood, called Cutting and Carving.

I. **T**He figures that are to be carved or graven in Wood must first be drawn, traced, or pasted upon the wood; and afterwards all the other standing of the wood (except the figure) must be cut away with little narrow pointed knives made for that purpose.

This graving in wood is far more tedious and difficult than that in Brass or Copper; because you must cut it, and be careful in picking it out, lest you should break any part of the work, which would deface it.

II. For the kind of the wood let it be hard and rough: the best for this purpose is Beech and Box or Pear-tree; let it be plained inch thick; which you may have cut into pieces according to the bigness of the figure you grave.

III. To draw the figures upon the wood.

Grind white lead very fine, and temper it with fair water; dip a cloth therein, and rub over one side of the wood and let it dry thoroughly: This keepeth the Ink (if you draw therewith) that it run not about, nor sink, and if you draw with Pastils, it makes the strokes appear more plain and bright.

IV. Having whited the wood as before (if it is a figure you would copy,) black or red the blank side of the print or copy, and with a little stick or swallow's quill, trace or draw over the strokes of the figure

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V. But if you paste the figure upon the wood, you must not then white it over (for then the figure will pill off) but only see the wood be well plained: then wipe over the printed side of the figure with Gum-Tragacanth dissolved in fair water, and clap it smooth upon the wood, which let dry thoroughly: then wet it a little all over, and fret off the paper gently, till you can see perfectly every stroak of the figure: dry it again, and fall to cutting or carving it.

• C H A P. VII.

Of Etching, and the Materials thereof.

I. *Etching* is an artificial Engraving of Brass or Copper plates with *Aqua fortis*.

II. The Instruments of Etching (besides the plate) are thirteen. 1. *Hard Varnish*. 2. *Soft Varnish*. 3. *Prepared Oyl*. 4. *Aqua fortis*. 5. *Needles*. 6. *Oyl-stone*. 7. *Brush-Pencil*. 8. *Burnisher*. 9. *A Scraper*. 10. *Compasses*. 11. *Ruler*. 12. *Stift*. 13. *The Frame and Trough*.

III. *To polish the Plate*.

Although in Chap. 2 of this Book, we have sufficiently taught how to polish the plate, yet nevertheless we think it convenient to subjoyn these following words. First, the plate being well planished or forged, choose the smoothest side to polish; then fix it upon a board a little declining, and rub it firmly and evenly all over with a piece of Grindstone, throwing water often on it, so long till there be no dints, flaws, or marks of the hammer.

IV. Wash it clean, and with a piece of good Pumice-stone, rub it crosswise to the former, so long till there be no rough stroaks or marks of the Grindstone.

V. Wash it clean again, and rub it with a fine Hoan and water crosswise to the former, till the marks of the Pumice-stone are rubbed out.

VI. Wash it again, and with a piece of Charcoal without knots (being heat red hot and quenched in Urine, the outside being pared off) rub the plate with water, till all the small stroaks of the Hoan be vanished.

VII. Lastly, if yet there remain any small stroaks or scratches, rub them out with the end of the burnishing Iron; but in case they are very deep, you must make use of your Scraper, and scrape them out, and burnish them afterwards; and then lastly take a Charcoal prepared as aforesaid, and rub therewith, with water, till the plate is glased, so shall the plate be fitted for work.

VIII. *To make the hard Varnish for Etching.*

Take Greek or Burgundy-pitch, Colophonium or Rozin, of each five ounces, Nut-Oyl four ounces; melt the Pitch or Rozin in an earthen pot upon a gentle fire; then put in the Oyl, and let them boil for the space of half an hour: cool it a little upon a softer fire till it appear like a Glewy Syrup; cool it a little more, strain it, and being almost cold, put it into a glased pot for use. Being thus made, it will keep at least twenty years.

IX. *To make the soft Varnish for Etching.*

Take Virgin-wax three ounces, Mastich in drops two ounces, Asphaltum one ounce: grind the Mastich and Asphaltum severally very fine: then in an earthen pot melt the wax, and strew in the Mastich and Asphaltum, stirring all upon the fire till they be well dissolved and mixed, which will be in about half a quarter of an hour; then cooling it a little, pour it into a bason of fair water (all except the dregs) and with your hands wet (before it is cold) form it into rouls.

X. Or thus, Take Virgin Wax, four ounces: Asphaltum, two ounces: Amber, Mastich, of each one ounce: the three last being in fine Pouder, mix it over a gentle fire, that it may not be burnt; then taking it from the fire, put it into a pot of fair water, and make it up into Balls or Rouls, and preserve it from the dust; when you use it, take a quantity of it, and bind it up in a piece of Taffaty or Silk, and use it as hereafter we shall direct.

XI. Or thus, for a Red Ground. Take Red Lead, grind it very well, and temper it with varnish.

XII. Or thus, for a White Ground. Take Rosin, two ounces: Wax, one ounce: melt them together, adding Venice Ceruse finely ground, two drams.

XIII. Or thus, for a Black Ground. Take Asphaltum four ounces; Bees Wax, two ounces; melt them together, being warm, lay it thinly on with a Lawn Rag.

XIV. Or thus, for another Red Ground. Take Red Lead or Vermillion, grind it very well, then grind it with Linseed Oyl; lay it on very thin.

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XV. Or thus, out of a Manuscript. Take *Virgin Wax*, four ounces : *Asphaltum*, *Amber*, *Mastick*, of each two ounces (but if cold weather, but one ounce of *Mastick*) *Resin*, *Shoomakers Pitch*, of each an ounce : *Common Varnish*, half an ounce : melting the *Wax* in an *Earthen Pot*, put in the other things by degrees, which then well mixed, make it up into *Balls* or *Rouls*, and keep it from dust for use.

XVI. Or thus, from *Rinebrant*. Take *Asphaltum* burnt, *Mastick*, *Amber*, of each half an ounce : *Virgin Wax*, an ounce : melt the *Wax* and mix therewith the former things in *Powder*, then make it into *Balls* or *Rouls* for use : when you use it, heat not the plate too hot, and lay your *Black Ground* very thin, and the *White Ground* upon it.

XVII. To make the prepared *Oyl*.

Take *Oyl Olive*, make it hot in an earthen pot, and put into it a sufficient quantity of tried *Sheeps Suet* (so much as being dropped upon a cold thing, the oyl may be a little hardened and firm) boil them together for an hour, till they be of a reddish colour, lest they should separate when you use them. This mixture is to make the fat more liquid, and not cool so fast, for the fat alone would be no sooner on the pencil, but it would grow cold ; and be sure to put in more oyl in *Winter* than in *Summer*.

XVIII. To make the *Aqua fortis*.

Take distilled *White-wine Vinegar* three pints ; *Sal-Armoniack*, *Bay-salt*, of each six ounces ; *Verdigrease* four ounces. Put all together into a large well glazed earthen pot (that they may not boil over) cover the pot close, and put it on a quick fire, and let it speedily boil two or three great walms and no more ; when it is ready to boil, uncover the pot, and stir it sometimes with a stick, taking heed that it boil not over ; having boiled, take it from the fire, and let it cool, being close covered, and when it is cold, put it into a *Glass bottle* with a *Glass stopple* : If it be too strong in Etching, weaken it with a glass or two of the same *Vinegar* you made it of.

XIX. There is another sort of *Aqua fortis*, which is called *Common*, which is exhibited in our *Pharmacopeia Londinensis* & *Doron. Medicum*. But because those Books may not be in every mans hand, we will here insert it ; it is thus : Take dried *Vitriol* two pound, *Salt-peter*, one pound, mix them and distil by a *Retort*, in open fire by degrees.

XX. To make the Etching Needles.

Choose

Choose Needles of several sizes such as will break without bending, and of a fine grain; then take good round sticks of firm wood (not apt to split) about six inches long, and as thick as a large Goose-quill, at the ends of which fix your Needles, so that they may stand out of the sticks about a quarter of an inch or something more. You ought to have twenty Needles at least; which you may fix in such sticks, as to have a pencil at the other end.

XXI. *To whet the points of the Needles with the Oyl-stone.*

If you would have them whetted round, you must whet their points short upon the Oyl-stone (not as sowing Needles are) turning them round whilst you whet them, as Turners do. If you whet them sloping, first make them blunt upon the Oyl-stone, then holding them firm and steady, whet them sloping upon one side only, till they come to a short and roundish oval.

XXII. The *brush pencil* is to cleanse the work, wipe off dust, and to strike the colours even over the ground or varnish, when laid upon the plate.

XXIII. The *burnisher* is a well hardened piece of steel somewhat roundish at the end. Its uses are what we have spoken at the sixth Section of the first Chapter, and the third Section of the second Chapter.

XXIV. The *Scraper* is one of the Instruments fitted for clearing the plate of all deep scratches or strokes which the burnisher will not take away; you are first to scrape them out with the scraper, (carrying your hand evenly, that you make not more work) and then afterwards to burnish upon what you have scraped.

XXV. The *Compasses* are chiefly of use to measure a distance, or strike a Circle, or some part or portion of a Circle, where you desire your work to be exact.

XXVI. The *Ruler* is of service chiefly, to draw all the straight hatches or lines of your design, upon plate; or, to mark out distances upon a straight line.

XXVII. The *Stife* is used to draw through all the outmost Lines or Circumferences of the Print, Pattern, or Drawing, which you Etch after.

XXVIII. *To make the Frame and Trough.*

The Frame is an entire board, about whose top and sides is fastened a ledge two inches broad, to keep the *Aqua fortis* from running off from the sides when you pour it on; the lower end of this board must be placed in the Trough, leaving
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sloping against a wall or some other thing, wherein you must fix several pegs of wood to rest the plate upon.

XXIX. The Trough is made of a firm piece of Elm or Oak set upon four legs, whose hollow is four inches wide; and so long as may best fit your use: the hollow must be something deeper in the middle, that the water running thither may fall through a hole (there made for that purpose) into an earthen pan well Leaded. *The inside of this board and trough must be covered over with a thick oyl colour, to hinder the Aqua fortis from eating or rotting the board.*

C H A P. VIII.

The way and manner of using the Hard Varnish.

I. **H**AVING well beat the polished plate over a Chasing dish of coals, take some of the first varnish with a little stick, and put a drop of it on the top of your finger, with which lightly touch the plate at equal distances, laying on the varnish equally, and heating the plate again as it grows cold; keeping it carefully from dust or filth; then with the ball of your thumb tap it upon the plate; still wiping your hand over all, to make it more smooth and equal.

And here beware that neither the varnish be too thick upon the plate, nor your hand sweaty.

II. Then take a great lighted candle burning clear, with a short snuff, (placing the corner of the plate against a wall) hold the varnished side downward over the candle, as close as you can, so it touch not the varnish, guiding the flame all over, till it is all perfectly black, which you must keep from dust or filth till it is dry.

III. Over a fire of Charcoals hang the varnished plate to dry with the varnish upwards, which will smoak; when the smoak abates, take away the plate, and with a pointed stick scratch near the side thereof, and if the varnish easily comes off, hang it over the fire again a little, so long till the varnish will not too easily come off; then take it from the fire and let it cool.

If the varnish should be too hard, cast cold water on the back-side of the plate to cool it, that the heat may not make it too hard and brittle. This done,

IV. Place it upon a low desk, or some such like thing, and cover that part which you do not work on, with a sheet of fine white paper, and over that a sheet of brown paper, on which may rest your hand, to keep it from the varnish.

V. If you use a ruler, lay some part of it upon the paper, that it may not rub off the varnish; and have an especial care, that no dust or filth get in between the paper and the varnish for that will hurt it.

CHAP. IX.

The way and manner of Etching.

I. IN making lines or hatches, some bigger, some lesser, straight or crooked, you must use several sorts of Needles, bigger or lesser, as the work requires.

II. The great lines are made by leaning hard on the Needle; its point being short and thick, (but a round point will not cut the varnish clear:) or by making divers lines; or hatches, one very close to another, and then by passing over them again with a thicker needle; or by making them with an indifferent large needle, and letting the *Aqua fortis* lie the longer thereon.

The best Needles for this work are such as are whet sloping with an oval, because their sides will cut that which the round ones will not.

III. If your lines or hatches ought to be of an equal thickness from end to end, lean on the needle with an equal force; leaning lightly where you would have the lines or strokes fine or small; and more heavy where you would have the lines appear deep or large; thereby the needle may have some Impression in the Copper.

IV. If your lines or hatches be too small, pass over them again with a short round point, of such a bigness as you would have the line of, leaning strongly where you would have the line deep.

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V. The manner of holding the needle with oval points (which are most proper to make large and deep stroaks) is much like that of a pen, only the flat side whetted is usually held towards the thumb : but they may be used with the face of the oval turned toward the middle finger.

VI. If you would end with a fine stroak, you ought to do that with a very fine needle.

VII. In using the oval points, hold them as upright and straight in your hand as you can, striking your stroaks firmly and freely, for that will add much to their beauty and clearness.

VIII. In Landskips, in places farthest from the sight, as also nearest the light, use a very slender point, leaning so lightly with your hand as to make a small faint stroak.

IX. In working be careful to brush off all the dust which you work off with the needles.

X. But this you are to observe, that you be able to copy any Drawing or print exactly, and to draw after good heads of Plaster, or Figures, according to your own fancy, and skilful in shadowing every thing exactly according to art : And therefore when you imitate Plaster, be sure to take the true out-lines or circumferences, and taking notice how the shadow falls, to do it very faint and soft as the design requires.

XI. Therefore it is convenient that you be able to hatch with the Pen, exactly after good Prints or Copies, and when you can perfectly do that, and draw after Plaster, then to imitate the life ; but before you draw after the life, you must be very exact and true in your out-lines or circumferences.

XII. Now to take the outmost lines in any Drawing or Print, upon the ground of the plate, you must scrape a little white lead upon the back side of it, then take a feather, and rub it over every where alike, and shake off that which remains loose. This done, take the print and lay it upon the Plate, on that side the ground is, and fasten the four corners thereof to the plate with a little soft Wax : and take the *Stift*, and draw upon the Print all the outmost lines or circumferences exactly ; which done, take off the print from the plate, and all the same out-lines and circumferences ; which you drew upon the print with the *Stift*, will be exactly found upon the ground.

XIII. Then observe exactly how your original or pattern is shadowed, and how close the hatches joyn, how they are laid, and which way the light falls or comes in: and be sure to make the light to fall all one way; if the light falls sideways in the Print; you must hatch the other side darkeſt, which is fartheſt from the light, and ſo place your lights altogether on one ſide, and not confuſedly, part on one ſide, and part on another.

XIV. Obſerve how close all the hatches joyn, how they incline, and which way they twiſt and wind; which follow as exactly as poſſibly you can: but before you begin to hatch or ſhadow, you muſt be ſure to draw all the outmoſt lines with a Needle upon the ground as artificially as you can, which ſhadow with your Needles of ſeveral ſorts according to your Original.

XV. When you are to make a broad ſtroak, then break off the point of your Needle, and whet it upon the oyl ſtone, four ſquare till it comes to a point; if you hatch fine ſtrokes then you muſt uſe fine pointed Needles: if middle ſized ſtrokes, then break off the point of a middle ſized Needle, and whet it as aforeſaid; and ſo in like manner according to all the ſizes: but ſome Artiſts, in making a bold or broad-ſtroke, hatch it firſt fine, and ſo by degrees make it broader.

Etching Landſhips.

XVI. When you etch Landſhips, hatch that which is neareſt to the eye darkeſt, and ſo let it looſe or decline its ſhadows by degrees, making that which is fartheſt off fainteſt.

XVII. The ſame thing you muſt obſerve in etching of the ſky. For that which is neareſt to the eye, muſt be darkeſt ſhadowed, but in general as faint and ſoft as may be, looſing it ſelf by degrees as is before directed; and the nearer the ſky comes to the ground, the more it muſt looſe and be fainter: when they both meet as it were together, the ſky muſt be quite loſt.

XVIII. When you have hatched it as exactly as you can poſſible with your Needles, after the Print or Drawing, then compare them exactly together, that you may ſupply any defect, or mend what is done amiſs.

XIX. In etching a piece of *Perspective* after a Draught or Print beware of Perfection at a diſtance, and be ſure to ſhadow that which is neareſt to the eye, perfeſteſt and ſtrongeſt,

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strongest, and the farther from the eye, it must decline in length, breadth, and height according to Art and Proportion; letting the shadows loose, and grow fainter and fainter, *gradatim*, till they are nearly lost.

Etching or Engraving of Letters.

XX. Screw the Copper plate (being fit for etching, by one of its corners) to a hand Vice, which hold over a Charcoal fire till it be warm: then take a piece of Virgin Wax, and rub it all over the plate, until it is covered every where alike.

XXI. This done, take a stiff Ducks-wing feather (not ruffled) and therewith drive the Wax even and smooth, every where alike, and so let it cool.

XXII. Then write the Letters or Hand, which you intend to put upon the plate, on a piece of Paper with ungum'd Ink: this paper thus written, lay with the written side downwards, upon the waxed plate, and fasten the four corners with a little soft Wax; the writing being so placed that the lines may run straight.

XXIII. Then take a Dogs tooth, and rub the paper all over with it, not missing any place; which done take off the Paper from the plate, so will all the letters which you wrote on the papers be left exactly upon the Wax.

XXIV. Take now a *Stift*, and draw all the letters through the Wax upon the plate, and take a linnen rag, or Pencil brush, with which cleanse the work from the loose Wax; so will all the letters be drawn upon the Copper.

XXV. This, if you pour upon it good *Aqua fortis*, will be etched: but if you take away all the Wax, you may better and more commendably perform it by Graving, with good Gravers well ground, and made sharp towards the points; then whetted very smooth and sharp upon a good Oyl-stone.

C H A P. X.

Of using the Aqua fortis.

I. IF there be any stroaks which you would not have the *Aqua fortis* eat into; or any places where the varnish is rubbed off, melt some prepared Oyl, and with a pencil, cover those places pretty thick.

II. Then take a brush pencil, or rag, and dip it in the prepared oyl, and rub the bak-side of the plate all over, that the *Aqua fortis* may not hurt it, if by chance any should fall thereon.

III. Before you put *Aqua fortis* to the plate, gently warm or dry the plate by a fire to dry up the humidity, which it might contract by reason of the Air; and to prevent the breaking up the varnish upon the first pouring the *Aqua fortis* thereon.

IV. Place the plate by the 12th. Section of the 7th. Chapter of this Book, and with the *Aqua fortis* in an earthen pot pour upon the plate, beginning at the top, so moving your hand that it may run all over the plate, which do for eight or ten times: then turn it corner-wise, and pour the *Aqua fortis* on it that way ten or twelve times; and then turn it again corner-wise the other way, pouring on the *Aqua fortis* eight or ten times as before; doing thus several times for the space of half a quarter of an hour or more, according to the strength of the water, and nature of the Copper.

For there must be less time allowed to hard and brittle Copper for pouring on the Aqua fortis, but more to the soft.

V. But you must have special regard to cast on the *Aqua fortis* as occasion shall require, and as the work is; casting it on at several times, and on several places; where you would have it very deep, often; where less deep, fewer times: where light, less yet; where lighter, lesser yet: and where so light as it can scarcely be seen, once or twice: wash it with water, and cover it where you would have it lighter.

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VI. Having thus covered your plates as occasion requires; for the second time, place the plate on the frame as aforesaid, and pour on it your *Aqua fortis* for a full half hour.

VII. Then wash it with water, and dry it, covering the places which require lightness or faintness (that they may be proportionable to the design) then pour on the *Aqua fortis* for the last time more or less according to the nature of your work, and the deepness that it requires.

VIII. You may rub off the varnish or ground, as occasion in your work requires with a Charcoal, to see whether the water hath eaten deep enough; by which you may judge of the space of time, that you are after to imploy in pouring on the *Aqua fortis*, in the works you will have to do, which if the shadows require much depth, or ought to be very black, the water ought to be poured on (at the least time) for an hour or better; yet know, *no certain rule of time can be limited for this.*

CH A P. XI.

Of Finishing the work.

I. **A**LL the former operations being done, wash the plate with fair water; and put it wet upon the fire, till the mixture be well melted, and then wipe it very clean on both sides with a linnen cloth, till you have cleansed it of all the mixture.

II. Take Charcoal of Willow, take off the rind of it, and putting fair water on the plate, rub it with the Charcoal, as if you were to polish it, and it will take off the varnish.

Where note, that the Coal must be free from all knots and roughness, and that no sand or filth fall upon the plate.

III. Take ordinary *Aqua fortis*, to which add two third parts of water, and with some linnen rags dipped therein rub the plate all over, so will you take away its discolouring, and recover its former beauty.

IV. Then take dry linnen rags, and wipe the plate so as to take off all the aforesaid water, and then holding it a little to the fire, put upon it a little Oyl Olive, and with a

piece of an old Beaver rolled up, rub the plate well all over, and lastly, wipe it well with a dry cloath.

V. Then if any places need touching with the Graver, as sometimes it happens, especially where it is to be very deep or black, perfect them with care; which done, the plate is ready for the Rolling-Press.

CHAP. XII.

The way of using the soft Varnish.

I. **T**He plate being prepared by cleansing it with a Charcoal and clean water, wash it well and dry it, then with fine white Chalk scraped and a fine rag, rub it well over, not touching it with your fingers.

II. Lay down you plate over a Chafing-dish of small-coal, yet so as the fire may have air; then take the ground or soft varnish (it being tied up in a fine rag) and rub it up and down the Copper, so as it may sufficiently cover it, (not too thin nor too thick :) then take a stiff Ducks feather, and smooth it as well as possibly you can all one way, and then cross it till it lie very well.

But you must take heed that the plate be not too hot, for if it lie till the ground smoak, the moisture will be dried up, and that will spoil the work, and make the ground break or fly up.

III. Then grind some Ceruse or White-lead with Gum-water, so that it may be of a convenient thickness to spread on the Copper; and with a large pencil, or small brush, strike the plate cross over, twice or thrice till it is smooth; and then with a larger brush (made of Squirrelstails) gently smooth the white, and then let it lie till it is dry.

IV. Or you may black the varnish with a candle, as we taught at the Second Section of the Eighth Chapter, and then if it be cold, warm it over the fire, till the varnish begin to melt, that the smoak may melt into the ground, so that you rub it not off with your hand.

CHAP.

C H A P. XIII.

The way of Etching upon the soft Varnish.

I. **T**He way of Etching is the same with that in the hard varnish, only you must be careful not to hurt your varnish, which you may do by placing on the sides of your plate two little boards, and laying cross over them another thin one, so as that it may not touch the plate, on which you must rest your hand whilst you work.

II. Then place the plate on a Desk (if you so please) for by that means the superfluous matter will fall away of it self.

III. But if you have any design to transfer upon the plate from any Copy or Print, scrape on the backside thereof some red Chalk all over; then go over that, by scraping some soft Charcoal, till it mingle with the Chalk; and with a large stiff pencil rub it all over till it be fine and even, and so lay down the design upon the plate: with a blunt Needle draw over the out strokes: *and as you work, you need not scratch hard into the Copper, only so as you may see the Needle go through the Varnish to the Copper.*

IV. Always be sure when you leave the work, to wrap the plate up in Paper, to keep it from hurt, and corrupting in the air, which may dry the varnish: and in Winter time wrap the plate up in a piece of Woollen, as well as paper, for if the frost get to it, it will cause the Varnish to rise from the Copper in the eating.

An inconveniency also will accrew, by letting the Varnish lie too long upon the Plate before the work is finished; for three or four months will consume the moisture and so spoil all.

V. The marking of the design upon the soft varnish, is best done with Black-lead or Chalk, if the ground is white; but with red Chalk, if the ground is black.

VI. Having Graved what you intend upon the varnish, take some fair water, a little warm, and cast it upon the Plate; and then with a soft clean Sponge, rub upon the White-lead to moisten it all over; and then wash the plate to take away the whiting, and dry it.

VII. Or Lastly, with *Aqua fortis* mixed with fair water, wash it all over, and by this means you may take away the whitening, which then wash with common water and dry it; and thus have you the plate prepared for the *Aqua fortis*.

C H A P. XIV.

Of using the Aqua fortis, and finishing the Work.

I. **P**Ut soft wax (red or green) round the brims of the plate, (being first drawn into a long slender roul or string) and let it be raised above the varnish about half a Barley Corns length; so that placing the plate level, the water being poured upon the plate may by this means be retained. But that you may be sure that the *Aqua fortis* shall not run out, you must take a knife and heat it in the fire, and sear the wax round about under the plate, very close: and be sure to fasten the Wax as near to the edges of the plate, as you can conveniently. This done,

II. Take single or common *Aqua fortis* six ounces, common water two ounces; mix them, and pour it gently upon the plate, so that it may cover it fully all over; so will the stronger hatchings be full of bubbles, while the fainter will appear clear for a while, not making any sudden operations to the view.

Note, to weaken the Aqua fortis, you may also mix it with Vinegar, or a little of that Aqua fortis which has been used formerly: for if your liquor be too strong, it will make the work very hard, and sometimes make the ground to break up. The deeper the Aqua fortis lies, the harder it will eat.

III. When you perceive the water to operate a small time, pour it off into a glazed earthen dish, keeping it to use with some other; and throw fair water upon the plate, to wash away the *Aqua fortis*, then dry the plate.

IV. And where you would have the Cut to be faint, tender or sweet, cover it with the prepared Oyl, and then cover the plate again with *Aqua fortis* as before, leaving it on for eight or ten minutes, or longer: then put off the *Aqua fortis* as before, washing and drying the plate, and covering with the prepared

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V. Lastly, put on the *Aqua fortis* again, for the space of half an hour (more or less) and then pour it off, washing the plate with fair water as before.

VI. As you would have your *lines* or *streaks* to be deeper and deeper, so cover the sweeter or fainter parts by degrees with the prepared Oyl, that the *Aqua fortis* may lie the longer on the deep streaks. Then,

VII. Take off the border of wax, and heat the plate, so that the Oyl and varnish may thoroughly melt; which wipe away well with a linnen cloth: then rub the plate over with Oyl Olive, and a piece of an old Beaver roll'd up, which done, touch it with the Graver where need is.

VIII. But if any thing be (at last) forgotten; then rub the plate aforesaid with crums of bread, so well that no filth or oyl remain upon the plate.

IX. Then heat the Plate upon a Charcoal fire, and spread the soft varnish with a feather upon it (as before) so that the hatchings may be filled with varnish; black it, and then touch it over again, or add what you intend.

X. Let your hatchings be made by means of the Needles, according as the manner of the Work shall require, being careful before you put on the *Aqua fortis*, to cover the first graving on the Plate with the prepared Oyl, (lest the varnish should not have covered all over :) then cause the *Aqua fortis* to eat into the work; and lastly cleanse the Plate as before.

XI. Your plate being cleansed, if you perceive that the *Aqua fortis* has not eaten as deep in some places, as it should have done, you must help those defects with a Graver.

XII. To know when the *Aqua fortis* has eat deep enough after it has layen a quarter or half an hour, pour off the *Aqua fortis* from the Plate into a Glas, wash it with a little fair water, and with a knife scrape off a little bit of the ground, where it is hatcht, and may be least prejudicial to your work; and if you find it not deep enough, cover the bare place of your Plate with your prepared Oyl, and put the *Aqua fortis* upon it again, letting it lye till you think it deep enough.

XIII. Or mix it with some new *Aqua fortis*, if you think what you have used to be too weak; by many Tryals and Practice, you will at length come to a certainty.

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XIV. Or you may make the Tryal upon a waste piece of Copper rudely hatched ; pouring the *Aqua fortis* both upon the Plate, and that at one and the same time: after a sufficient season, with a knife take off a little piece of the ground from the waste piece of Copper where it is hatched, and if it be not deep enough, cover it again with your prepared Oyl, and make a new Tryal, and so proceed on, till you find the *Aqua fortis* has eaten deep enough.

XV. Observe to wash the Plate with a little fair water, before you warm it, for otherwise, the *Aqua fortis* will stain the Plate.

XVI. If the ground be broken up in any place, put off the *Aqua fortis* from the Plate, wash it with fair water, and cover it with your prepared Oyl, then pour on the *Aqua fortis* again, thus will you preserve your Plate from injury.

XVII. To make your *Aqua fortis* work harder or softer, you must cover those places of your Plate which you would have to be faint (after that the *Aqua fortis* has been once poured off your Plate) with your prepared Oyl, which Oyl you must use by degrees, as you would have your work fainter : this in Etching Landscips you will find necessary, for that they must lose and stand at a distance *gradatim*.

CHAP. XV.

Of Limning, and the Materials thereof.

I. **L**imning is an Art whereby in water Colours, we strive to resemble Nature in every thing to the Life.

II. The Instruments and Materials thereof are chiefly these, 1. Gum. 2. Colours. 3. Liquid Gold and Silver. 4. The Grind-stone and Muller. 5. Pencils. 6. Tables to Limn in. 7. Little Glasses, or Horesmuscle-shells.

III. The Gums are chiefly these four, Gum-Arabick, Gum-Lake, Gum-Hedera, Gum-Armoniack.

IV. The principal Colours are these seven, *White, Black, Red, Green, Yellow, Blue, Brown* : out of which are made mixt or compound Colours.

V. The *Liquid Gold and Silver* is either natural or artificial.

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The natural is that which is produced of the Metals themselves : the artificial is that which is formed of other colours.

VI. The Grindstone, Muller, Pencils, Tables, and Shells, or little Glasses, are only the necessary instruments and attendants, which belong to the practice of Limning.

VII. Chuse such Pencils as are clear and sharp pointed, not dividing into parts : of these you must have many in a readiness, a several Pencil at least, for every several Colour.

CHAP. XVI.

Of the Gums, and their Use.

I. **T**He chief of all is Gum-Arabick, that which is white, clear and brittle ; the Gum-water of it is made thus.

Take Gum-Arabick, bruise it and tye it up in a fine clean linnen cloath, and put it into a convenient quantity of pure spring-water, in a glass or earthen vessel ; letting the Gum remain there till it is dissolved ; which done, if the water is not stiff enough, put more Gum into the cloath ; but if too stiff, add more water : of which Gum-water have two sorts by you, the one strong, the other weak ; of which you may make a third at pleasure.

II. But if you be where Gum-Arabick is not to be got, you may instead of that use the preparation of Sheeps leather or parchment following :

Take of the shreds of white Sheep-Skins (which are to be had plentifully at Glovers) or else of parchments, one pound ; Conduit or running water two quarts, boil it to a thin gelly, then strain it whilst hot through a fine strainer, and so use it.

III. Gum-Lake, it is made of whites of Eggs beaten and strained a pint, Honey, Gum-Hedera, of each two Drams, strong wort four Spoonfuls, mix them, and strain them with a piece of sponge till they run like a clear Oyl, which keep in a clean vessel till it grows hard.

This Gum will dissolve in water like Gum-Arabick, of which Gum-water is made in like manner ; it is a good ordinary varnish for Pictures,

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IV. Gum-Hedera, or Gum of Ivy ; it is gotten out of Ivy ; by cutting with an Axe a great branch thereof, climbing upon an Oak-tree, and bruising the ends of it with the head of the Axe ; at a Months end, or thereabouts, you may take from it a very clear, and pure fine Gum, like Oyl.

V. It is good to put into Gold-size and other Colours, for these three reasons : 1. It abates the ill scent of the size : 2. It will prevent bubbles in Gold-size and other Colours : 3. Lastly, it takes away the fat and clamminess of Colours : besides which it is of use in making Pomanders.

VI. Gum Amoniacum, It is a Foreign Gum, and ought to be bought strained. Grind it very fine with juice of Garlic and a little Gum-Arabick water, so that it may not be too thick, but that you may write with it what you will.

VII. When you use it, draw what you will with it, and let it dry ; and when you gild upon it, cut your Gold or Silver to the fashion which you drew with the size or gum, then breath upon the size and lay the Gold upon it gently taken up, which press down hard with a piece of wool ; and then let it well dry ; being dried, with a fine linnen cloth strike off the loose Gold ; so will what was drawn be fairly gilded if it were as fine as a hair : it is called Gold-Armoniack.

C H A P. XVII.

Of the Seven Colours in General.

I. **T**HE chief Whites are these, Spodium, Ceruse, White-lead, Spanish-white, Egg-shells burnt.

II. This Colour is called in Greek λευκος of λεύω, video to see, because λευκοτης ἐστὶ διακριτικὸν ὄψεως, whiteness (as Aristotle said) is the object of sight, in Latin *Albus*, from whence the Alps had their name, by reason of their continual whiteness with Snow.

III. The Spanish-white is thus made. Take fine Chalk three ounces, Alum one ounce, grind them together with fair water till it be like pap ; roul it up into balls, which dry leisurely : then put them into the fire till they are red hot ; take them out, and let them cool : it is the best white of all, to garnish with, being ground with weak Gum-water.

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IV. The chief *Blacks* are these, Harts-horn burnt, Ivory burnt, Cherry-stones burnt, Lamp-black, Charcoal, Sea-coal, Verditer burnt, Mummy burnt.

V. *Black*, in Latin *Niger*, is so called from the Greek word νεκρός, which signifies dead, because putrefied and dead things are generally of that colour. Lamp-black is the smoak, of a Link, Torch, or Lamp gathered together.

VI. The chief *Reds* are these, Carmine, Vermilion, Red-lead, Indian-lake, native Cinnabar, Red-Oker, Yellow-Oker burnt, Indian Red.

VII. It is called in Latin *Ruber* παρὰ τὴν ῥοὴν ἀ corticibus vel granis mali punici; from the Rinds or Seeds of Pomegranates, as Scaliger saith.

VIII. The chief *Greens* are these, Green Bice, Green Pink, Verdigrise, Verditer, Sappgreen, Pink mixt with Bice.

IX. This Colour is called in Latin *Viridis* from *Vires*: in Greek χλωρὸν ἢ χλοή, Grals or Green Herb, which is of this Colour.

X. The chief *Yellows* are these, Orpiment, Masticot deep and light, Saffron, Pink-yellow, dark and light, Oker de Luce, English-Oker, Roman-Oker, Gall-stone.

XI. This Colour is called in Latin *Flavus*, *Luteus*, in Greek ξανθός, which is Homer's Epithete for Menelaus, where he calls him ξανθὸς Μενελάου.

XII. The chief *Blews* are Ultramarine, Indico, Smalt, Blue Bice.

XIII. This colour is called in Latin *Ceruleus*, in Greek κυανέου ἢ κυάνου, the name of a stone which yields Ultramarine.

XIV. The chief *Browns* are Umber, Spanish-brown, Colens Earth, Gallstone, rust of Iron, Mummy. It is called in Latin *Fuscus*, quasi ὥς σκιάται, from darkning the Light, in Greek φάος.

XV. This is to be noted, that of the aforementioned colours, Vermillion, Verdigrise, Orpiment and some others are too coarse and gritty to be used in water Colours; unless they be purified and prepared.

XVI. And Turnsole, Litmose blue, Roset, Brasil, Logwood, and Saffron, are more fit for washing Prints, than curious limning.

C H A P. XVIII.

Of Colours in Particular.

I. *Ceruse*, Grind it with glair of Eggs, and it will make a very good white. It is too yellow for some purposes, course and gritty.

II. *White-lead*, Grind it with a weak water of Gum-lake, and let it stand three or four days, after which if you mix with it *Roset* and *Vermillion*, it makes a fair *Carnation*.

III. To make that your *White-lead* shall neither rust nor shine (both which are great faults in the Art of Limning) before you grind it lay it in the Sun two or three days, to exhale that greasy and salt matter that poysons and starves the colour; scraping away also the outside that is foul or dirty, which then grind with fair *Water*, or *Lavender*, or *Rosemary* water upon a *Porphyre*. When it is ground have in a readines a chalk Stone, with furrows in it, into which furrows put the colour whilst it is wet, and so let it dry in the Sun, and it will be very clean and white.

IV. Being through dry, let it be washt in this manner. Take of the former cleansed *Lead* a pound, put it into a bason of spring water, stir it a while together till the water is all very white, then let it stand, and a kind of greasie scum will arise, which blow off, and pour the white water, (being stirred afresh, and a little settled again) into a clean Bason, leaving the grosser body at the bottom behind (not fit for our purpose:) let this water stand an hour or two, till it is quite settled.

V. Then decant the clear water, and put to the sediment fresh water, stir it as before mentioned, then let it settle half the time it did at first, and pour off the white water into another clean bason, leaving again the courser part behind; let this water settle, and decant away the clear water from it: the remaining *Lead* dry, and then put it up into papers for your use. Thus refined five or six times, it will be most pure, and best for use.

VI. When you have occasion for it, spread a little of it about a shell with your finger, and temper it with *Gum-water*. In the same manner must *Ceruse* be washed. Observe also in grinding of *White*, that you grind it not too much, lest it prove greasy or Oily, or of a dirty colour.

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VII. *Spanish-white*, It is the best white of all, to garnish with, ground with Gum-water.

VIII. *Lamp-black*, ground with Gum-water, it makes a good black.

IX. *Vermilion*, Grind it with the glair of an Egg, and in the grinding put a little clarified honey, to make its colour bright and perfect. *Native Cinnabar is better and a brisker colour.*

X. *Cinnabar-lake*, it makes a deep and beautiful red, or rather purple, almost like unto a Red-rose. Grind it with Gum-lake and Turnsole-water: if you will have it light, add a little Ceruse, and it will make it a bright Crimson; if to Diaper, add only Turnsole water.

XI. *Red lead*, Grind it with some Saffron, and stiff Gum-lake; for the Saffron makes it orient, and of a Marigold colour.

XII. *Turnsole*, Lay it in a Sawcer of Vinegar, and set it over a Chafing-dish of coals; let it boil, then take it off, and wring it into a shell, adding a little Gum-Arabick, let it stand till it is dissolved: It is good to shadow Carnation, and all Yellows.

XIII. *Roset*, Grind it with Brazil-water, and it will make a deep purple: put Ceruse to it, and it will be lighter; grind it with Lirmose, and it will make a fair Violet.

XIV. *Spanish brown*, Grind it with Brazil-water: mingle it with Ceruse, and it makes a horse-flesh Colour. *It is not so brisk and lively as Indian Red.*

XV. *Bole-Armoniack*, It is a faint colour; its chief use is, in making size for burnish'd gold.

XVI. *Green-bice*. Order it as you do Blue bice; when it is moist, and not through dry, you may Diaper upon it with the water of deep green.

XVII. *Verdigrise*, Grind it with juyce of Rue, and a little weak Gumwater, and you will have a most pure green: if you will Diaper with it, grind it with Lye of Rue (or else the decoction thereof) and there will be a hoary green.

XVIII. Diaper upon Verdigrise green with Sap-green: also Verdigrise ground with white Tartar, and then tempered with gum-water, gives a most perfect green.

XIX *It is extreemly course unless it be purified as I have taught in my Doron, lib. 3. cap. 4. Sect. 13. § 2. Being so prepared one ounce will be worth Ten of the Course, or that which is bought in the shops. It is done with spirit of Vinegar.*

XX. *Verditer*, grind it with a weak Gum-Arabick water: it is the faintest green that is, but is good to lay upon black, in any kind of Drapery.

XXI. *Sap green*; lay it in sharp Vinegar all night; put in to it a little Alom to raise its colour, and you will have a good green to Diaper upon other greens. *It is a shining but a fading colour*, use green Pink instead of it; for it has neither of those faults.

XXII. *Orpiment*, *Arsenicum* or *Auripigmentum*, grind it with a stiff water of Gum-lake, because it is the best colour of it self, it will lie upon no green, for all greens, White and Red-lead, and Ceruse stain it: Wherefore you must deepen your colours so that the Orpiment may be highest, and so it may agree with all Colours. *It is of a Venomous property, and some of it is course.*

XXIII. *Masticor*, Grind it with a small quantity of Saffron in gum-water, and never make it lighter than it is: it will endure to lie upon all colours and metals.

XXIV. *Saffron*, Steep it in glair: it may be ground with Vermilion.

XXV. *Pink-yellow*, If you would have it sad coloured, grind it with Saffron; if light, with Ceruse: mix it with weak gum-water, and so use it.

XXVI. *Oker de Luce*, grind it with pure Brazil water: it makes a passing hair colour; and is a natural shadow for gold. *Roman Oker is the more glowing of all the Okers.*

XXVII. *Umber*, It is a more sad brown colour. Grind it with gum-water, or gum-lake; and lighten it (if you please) with a little Ceruse and a blade of Saffron; to cleanse it, burn it in a Crucible, then grind it, and it will be good, and when you temper it in your shell, use a drop or two of Onion-water, and it will preserve it from crackling.

XXVIII. *Ultramarine*, If you would have it deep, grind it with Litmose-water; but if light, with fine Ceruse and a weak Gum-Arabick water.

XXIX. *In grinding Ultramarine* and other colours, let not your motion be too swift, but grind it gently and slow, because the swiftnes of the motion, causeth the stones to heat, which will cause your colour to starve or loose somewhat of its Lustre, especially if it be a colour of no great body, as Pink, Indico, &c.

XXX. *Indico*, Grind it with water of Gum-Arabick, as Ultramarine,

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XXXI. *Blue-Bice*, Grind it with clean water, as small as you can, then put it into a shell, and wash it thus: put as much water to it as will fill up the vessel or shell, and stir it well, let it stand an hour, and the filth and dirty water cast away; then put in more clean water, do thus four or five times.

XXXII. At last put in Gum-Arabick water somewhat weak, that the Bice may fall to the bottom; pour off the gum-water, and put more to it, wash it again, dry it, and mix it with weak gum-water (if you would have it rise of the same colour) but with a stiff water of Gum-lake, if you would have a most perfect blue; if a light blue, grind it with a little Ceruse; but if a most deep blue, add water of Litmose.

XXXIII. *Smalt*, Grind it with a little fine Roset, and it will make a deep Violet: and by putting in a quantity of Ceruse, it will make a light Violet.

XXXIV. *Litmose-blue*, Grind it with Ceruse: with too much Litmose it makes a deep blue; with too much Ceruse, a light blew: grind it with the weak water of Gum-Arabick.

XXXV. Take fine Litmose, cut it in pieces, lay it in weak water of Gum-lake for twenty four hours, and you shall have a water of a most perfect Azure; with which water you may Diaper and Damask upon all other blues, to make them shew more fair and beautiful.

XXXVI. *Orchal*, Grind it with unslak'd Lime and Urine, it makes a pure Violet: by putting to more or less Lime, you may make the Violet light or deep as you please.

XXXVII. Mummy burnt, makes a good black: but otherwise it is ill conditioned, hard, and will not flow from the pencil, you may burn it in a Crucible well luted.

XXXVIII. *English Oker*, It is a yellow colour, and lies even in the shell, of it self: it is of great use being well ground.

XXXIX. *Pink mixed with Bice*, It is a good Green; the fairest Pink is best, well ground and tempered with blue Bice, allowing one quantity of Pink, to three of blue Bice. To deepen this colour in Landskip or Drapery, mix with it a little Indico finely ground.

XL. *Indian Lake*. It makes a delicate Purple, grind it with a little Gum-water, and when it is ground fine, before you put it into the shell, mix a little powder of white Sugar-candy with it, which will preserve it from crackling; then may

you spread it thinly with your finger about the shell.

XLl. Indian Red. It makes a dark Red, because this colour is very coarse, you may use *Umber*, and a little *Lake* tempered, which is as good.

XLII. Ivory black. Grind it with a little white Sugar-candy, it will preserve it from crackling out of your shell: it makes a black.

XLIII. Cherry stone. It is burnt in a Crucible (as is the former) and so ground. It is good for Drapery, and for a black Sattin. Temper it with a little white, *Indian-Lake*, and *Indico*. Heighten it with a lighter mixture, deepen it with Ivory black; this was *Hilliards* way.

XLIV. Caput mortuum of Vitriol. First grind it well upon a Porphyry; then carefully wash it, as we have taught you to wash White-lead in Chap. 18. Sect. 2. aforegoing; after grind it with a weak Gum-lake-water: it makes a deep red, or almost a purple color.

XLV. Observations upon some of the preceding Colors, and first of REDS.

1. *Vermillion.* It is a most perfect Scarlet color; it is so fine that it needs no grinding, but may be tempered with your Finger with Glair or Gum-water and so used mixt with a little yellow Berries, it makes it the lighter and brighter Color, and is then principally used for Garments.

XLVI. 2. Red Lead. It is the nearest to an Orange Color; and mixt with yellow Berries, it makes a perfect Orange. It is used for Buildings and high ways in Landskips, being mixt with a little White. It is the only bright Color to shadow yellow Garments with, to make them shew like changeable Taffety, and to color any light Ground in a Picture, and several other uses, as you see occasion.

XLVII. 3. Cinnabar Lake. You may shadow with it yellow Garments in the darkest places, as also Vermillion mixt with white only, it makes a *Sky Color*. With white and red Lead, a *Flesh Color*; and is an excellent Color of it self to colour Garments with. This Color is dear, and therefore instead thereof, for ordinary uses, you may use *Red Ink* thickened upon the Fire, which will serve very well; and better than *Lake*, unless it be very good.

XLVIII. 4. Red Ink It is made by boiling *Brazil* in Powder in Vinegar mixt with Beer adding a little Alum to heighten the Color: boyl it till it tastes strong on the Tongue, then strain it out, and keep it close stopp'd for use. If you mix it with

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XLIX. Observations on BROWN Colors.

1. *Spanish Brown.* It is a dirty Brown Color, but of great use; as also to shadow Vermillion, or lay upon a dark Ground behind a Picture. You may shadow yellow Berries with it in the darkest places; when you want *Lake* or thick *Red Ink*. Color not Garments therewith, unless it be old Men's Gowns.

L. 2. *Umber.* It is a Hair Color, and the best and brightest when it is calcined red hot. But to color any *Hare*, *Horse*, *Dog*, &c. with it, you must not burn it; but for other uses it is best calcined or burnt, as to color Posts, bodies of Trees, Timber-work, or any dark Ground in a Picture.

LI. Use it not in Garments, unless in old Men's Gowns, or Caps standing together, for that they must not be all of a Color. But for distinction and variety sake, you may use it unburnt in many cases.

LII. Observations on GREEN Colors.

1. *Verdigrise.* It is a good Green, but subject to decay: being dry upon Paper, it will be of a higher Color than when it was first laid on; therefore to preserve it from that fault, dissolve *Sap-Green* in it, and it will keep its Color. You may make it fine by extracting its Tincture with Spirit of Vinegar, and then evaporating to dryness; an ounce of that will be worth ten ounces of the other.

LIII. 2. *Verditer.* It is a light Green, seldom used in any thing but coloring Land-skips, which seem afar off; and it is good for such a purpose, because it is inclining to blew.

LIV. 3. *Sap Green.* It is a dark dirty Green, never used but to shadow other Greens in the darkest places; or to lay upon some dark ground behind a Picture, which ought to be of a dark Green: but you may do without this Color, for Indico mixt with yellow Berries make just such another Color.

LV. 4. *Copper Green.* It is an excellent transparent Color, of a shining nature, if thickned in the Sun, or over a gentle Fire. It is most used of any Green in washing of Prints or Maps, especially in coloring of Trees, Ground, Grass, &c. for it is a most perfect Grass-green.

LVI. Observations on YELLOW Colors.

1. *Saffron.* It is a deep Yellow if it stands long, and is good principally to shadow yellow Berries with instead of Red Lead,

but is somewhat a brighter shadow: Red Lead and yellow Berries, make just the like Color.

LVII. 2. *Masticote*. It is a light Yellow, just like yellow Berries mixt with White: it is used to color a light Ground in a Picture, and then to shadow it with the Water, viz. the thinnest part of the Color of burnt Umber or red Lead.

LVIII. 3. *Yellow Berries* It is most used in washing of Maps, Pictures, &c. of all other Colors it is bright and transparent, fit for all uses, and sufficient without the use of any other Yellow.

LIX. *Observations on BLEW Colors.*

1. *Blew Bice*. It is the most excellent *Blew* next to Ultramarine, and may serve instead thereof. It is too good a Color to use upon all occasions: and for more ordinary uses, you may use *Smalt* in stead of either of them, but it will not work so well as *Bice*, when you intend to bestow some cost and pains upon a piece, you may use *Bice*; otherwise you need use no other *Blew* in your Work than *Blew Verditer*; with which in ordinary Works, you may make a pretty good shift, though all the other *Blews* be wanting.

LX. 2. *Indico*. It is a dark *Blew*, and principally used to shadow with upon other *Blews*. Mixt with yellow Berries, it makes a dark Green, to shadow other Greens with in the darkest places.

LXI. 3. *Blew Verditer*. It is a very bright pleasant *Blew*, and the easiest to work with in Water: it is somewhat inclining to a Green, and the *Blew* which is the most of all used mixed with yellow Berries it makes a good Green.

LXII. *Observations on WHITE Colors.*

1. *Ceruse*. It is the best White, next to Spanish White, and better than white Lead, if it be good and finely ground, as you may have it ready prepared at the Colour-Shops; being only white Lead cleansed and made more pure.

LXIII. 2. *White Lead*. It will serve in place of the former, if washt as before is directed; either of them will serve the same occasion, and being mixed with another Color they make it lighter, the which you may vary in proportion as you see occasion.

LXIV. *Observations on BLACK Colors.*

1. *Lamp Black* or *Printers Black*. It is the most used, because it is the easiest to be had, and is good in Washing. But you must never put Black amongst other Colors, to make them dark, for so they will become dirty; neither shadow any Color

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lor with Black, unless it be *Spanish Brown*, when you would color an old Mans Gown, which ought to be done of a sad Color; all other Colors shadowed with Black, look dirtily, not bright, fair or beautiful.

LXV. 2. *Ivory Black*. It is the deepest Black that is; and is thus made. Take pieces of Ivory put it into a Furnace till it be thoroughly burned, then take it out, and let it cool; pare off the outside, and take the blackest in the middle.

LXVI. *A glorious Color of East-India Cakes*.

In using of these Cakes, you may take one, or a part of one of them, and put it into a Horse-Muscle-Shell, which is very clean, adding a little fair Water; just enough to wet it all over, letting it lie so about a quarter of an hour: then squeeze it hard against the Shell, or wring it out between your Fingers, and there will come forth an admirable transparent Color, which will serve instead of *Lake*, if your *Red Cake* be good.

LXVII. These Cakes are commonly counterfeit and good for little, but you may know them by cutting a little way into them: if they be good they are as red within as they are without; if naught, they look pale and whitish within.

C H A P. XIX.

Of mixt and compound Colors.

I. **M**Urry, It is a wonderful beautiful color, composed of purple and white: it is made thus. Take *Cinnabar-lake two ounces*; *White-lead one ounce*, grind them together. See the twenty fourth Section following.

II. *A glass gray*, mingle *Cerule* with a little *Azure*.

III. *A bay color*, mingle *Vermillion* with a little *Spanish brown* and *black*.

IV. *A deep purple*, It is made of *Indico*, *Spanish-brown* and *white*.

It is called in *Latin Purpureus*, in *Greek πορφυρεος* from *porpura*, a kind of shell-fish that yields a liquor of that color.

V. *An Ash-color*, or *Gray*, It is made by mixing *White* and *Lamp-black*; or *white* with *Sinaper*; *Indico* and *black* make an *Ash-color*.

It is called in Latin *Cæsius*, and color *Cinereus*; in Greek *Γλαυκός* and *τεφρώδης*.

VI. *Light Green*, It is made of Pink and Smalt; with white to make it lighter if need require.

VII. *Saffron Color*, It is made of Saffron alone by infusion.

VIII. *Flame Color*, It is made of Vermilion and Orpiment, mixed deep or light at pleasure: or thus, Take Red-lead and mix it with Masticot, which heighten with white.

IX. *A Violet color*, Indico, White and Cinnaber-lake, make a good Violet. So also Ceruse and Lirmose, of each equal parts.

X. *Lead color*, It is made of White mixed with Indico.

XI. *Scarlet color*, It is made of Red-lead, Lake, Vermilion: yet Vermilion in this case is not very useful.

XII. *To make Vermilion*.

Take Brimstone in powder four ounces, mix it with Quick-silver a pound, put it into a Crucible well luted, and upon a Charcoal-fire heat it till it is red hot; then take it off and let it cool. You have a better way to do this in my *Pharmacopœia Londinensis lib. 3. cap. 7. Sect. 54.* to which I refer you.

XIII. *To make a bright Crimson*.

Mix tincture of Brazil with a little Ceruse ground with fair water.

XIV. *To make a sad Crimson*.

Mix the aforesaid light Crimson with a little Indico ground with fair water.

XV. *To make a pure Lake*.

Take Urine twenty pound, boil it in a Kettle and scum it with an Iron scummer till it comes to sixteen pound; to which add Gum-Lake one pound, Alom five ounces; boil all till it is well colored, which you may try by dipping therein a piece of linnen cloth; then add sweet Alom in powder a sufficient quantity, strain it and let it stand: strain it again through a dry cloth till the liquor be clear: that which remains in the cloth or bag is the pure Lake.

XVI. *To make a Crimson-Lake*.

Its usually made of the flocks shorn off from Crimson-cloth by a Lye made of Salt-peter, which extracts the colour; which precipitate, edulcorate, and dry in the Sun or a Stove.

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Take white Tarrar and Virdigrise, temper them with strong White-wine Vinegar, in which a little Gum-Arabick hath been dissolved.

XVIII. *A pure Violet.*

Take a little Indico and tincture of Brazil, grind them with a little Ceruse.

XIX. *A pure Purple Color.*

Take fine brimstone an ounce and an half, Quick-silver, Sal-Armoniack, Jupiter, of each ope ounce; beat the Brimstone and Salt into powder, and make an Amalgama with the Quick-silver and Tin, mix all together, which put into a great glass goard; make under it an ordinary fire, and keep it in a constant heat for the space of six hours.

XX. *To make a Yellow color.*

Take the Yellow chives in white Lillies, steep them in gum-water, and it will make a perfect Yellow; the same from Saffron and Tartar tempered with gum-water.

XXI. *To make a Red Color.*

Take the roots of the lesser Burglofs, viz. *Alkanet*, and beat them, and strain out the juyce, and mix it with Alom-water.

XXII. *To make excellent good Greens.*

The Liver of a Lamprey makes an excellent and durable grass green; and yellow laid upon blue will change into green; so likewise the juyce of a blue Flower de Luce, mixed with gum-water, will be a perfect and durable green or blue, according as it is used.

XXIII. *To make a Purple color.*

Take the juyce of Bilberries, and mix it with Alom and Galls, and so paint with it.

XXIV. *To make a good Murry.*

Temper Roset with a little Rose-water, in which a little gum hath been dissolved, and it will be good, but not exceeding that at the first Section of this Chapter.

XXV. *To make Azure or Bleu.*

Mix the Azure with glew-water, and not with gum-water.

XXVI. *To make a Yellow Green or Purple.*

Buck-thorn berries gathered green and steeped in Alom-water yield a good yellow: but being through ripe and black they yield a good green: and lastly, being gathered when they are ready to drop off, which is about the mid-

dle or end of November, their juice mixt with Alom-water yields a good Purple color.

XXVII. To make a Purple color.

Take Log-wood, boyl it in Vinegar and Beer, in a glazed earthen Vessel, adding thereto a little Alum, till you taste it to be strong on your Tongue: being sufficiently boiled, strain out the Liquor through a Cloth, and keep it in a Glass close stopt for use.

XXVIII. Another Purple Color.

Mix *Blew Bice* and *Lake* together; or if you want *Bice*, take *Blew Verditer* (but that is not altogether so good:) mix them well together and it is done. If you want *Lake*, you may instead thereof use *thick red Ink*, which will do as well as *Lake* in *Washing*.

XXIX. To make a Flesh Color.

Mix with *White* a little *Lake* and *Red Lead*; a very small quantity of each; you may make it as light or as red as you please, by putting more or less *White* in it. If you would have a swarthy Complexion, to distinguish a Man's Flesh from a Womans, put a little *yellow Oaker* among your *Flesh Color*; and for your shadow put a little more *Lake*, and a small quantity of *burnt Umber*.

XXX. To make Cloud Colors.

You may sometimes take *Blew Verditer*; or *White* shadowed with *Blew Verditer*: sometimes *light Masticote* shadowed with *blew Verditer*; or *Lake* and *White*, or *red Ink* and *White* shadowed with *blew Verditer*, as aforesaid.

XXXI. To make Sky Color.

Mix *White* with *light Masticote* or *yellow Berries* for the lowest and lightest places: *red Ink* not thickned and *White*, for the next degree: *blew Bice* and *White* for a higher degree: and *blew Bice* alone for the highest of all. Instead of *Bice* you may use *Verditer*; all which must be laid on, and so wrought one into another, that there be no sharpness or sensible beginning in the edge of your Colors, but that they be as it were one drowned in another.

XXXII. To make Colors of all kinds of Metals.

Take a piece of *Cryстал*, beat it by it self in an *Iron* or *Brass* Mortar, and grind it dry, on a *Marble* or *Porphyry* Stone, till the Powder be very fine; then grind it again on the same Stone with good *Glair of Eggs*, and lay it on the Work with a *Pen* or *Pencil*; being well dried rub it over with

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with Leaf Gold, or any other Metal, and it will be of the same Color that the Metal is of.

XXXIII. If *Quick-silver* two ounces be amalgamated with Tin one ounce, then melted, and after ground on a Painters stone very small, it will be a powder of a Silver Color.

C H A P. XX.

Of Colors for Drapery.

- I. *For Yellow Garments.* Take Masticot deepned with Brown-Oker and Red-Lead.
- II. *For Scarlet.* Take Vermilion deepned with Cinnaberslake, and heightened with touches of Masticot.
- III. *For Crimson.* Lay on Lake very thin, and deepen with the same.
- IV. *For Purple.* Grind Lake and Smalt together: or take Blue-bice, and mix it with Red and White-Lead.
- V. *For an Orient Violet.* Grind Litmose, Blew-Smalt, and Ceruse, but in mixture let the Blew have the upper hand.
- VI. *For Blew.* Take Azure deepned with Indy-Blew or Lake heightened with white.
- VII. *For black Velvet.* Lay the garment first over with Ivory black, then heighten it with Cherrystone black, and a little white.
- VIII. *For black Sattin.* Take Cherry-stone black; then white deepned with Cherry-stone black; and then lastly, Ivory black.
- IX. *For a pure Green.* Take Verdigrise, bruise it, and steep it in Muscadine for twelve hours, then strain it into a shell, to which add a little Sap-green: (but put no gum thereto.)
- X. *For a Carnation.* Grind Ceruse, well washed, with Red-lead; or Ceruse and Vermilion.
- XI. *For Cloth of Gold;* Take brown Oker and liquid Gold water, and heighten upon the same with small stroaks of Gold.
- XII. *For white Sattin.* Take first fine Ceruse, which deepen with Cherry-stone-black, then heighten again with Ceruse, and fine touches where the light falleth.

XIII. *For a Russet Sattin.* Take Indy-blew and Lake, first thin, and then deepned with Indy again.

XIV. *For a hair Colour.* It is made out of Masticor, Umber, Yellow Oker, Ceruse, Oker de luce, and Sea-coal.

XV. *For a Popenjay Green.* Take a perfect Green mingled with Masticor.

XVI. *For changeable Silk.* Take water of Masticor and Red-lead : which deepen with Sap-green.

XVII. *For a light Blew.* Take Blew bice, heightened with Ceruse or Spodium.

XVIII. *For to shadow Russet.* Take Cherrystone-black and white ; lay a light Russet, then shadow it with white.

XIX. *For a Skie Colour.* Take Blew-bice and Venice Ceruse : but if you would have it dark, take some blew and white.

XX. *For a Straw Colour.* Take Masticor, then white heightened with Masticor, and deepned with Pink. Or thus, Take Red-lead deepned with Lake.

XXI. *For Yellowish.* Thin Pink deepned with Pink and Green : Orpiment burned makes a Marigold colour.

XXII. *For a Peach Colour.* Take Brazil water, Log-wood-water and Ceruse.

XXIII. *For a light Purple.* Mingle Ceruse with Logwood water : or take Turnsole mingled with a little Lake, Smalt and Bice.

XXIV. *For a Walnut Colour.* Take Red-lead thinly laid, and shadowed with Spanish brown.

XXV. *For a Fire Colour.* Take Masticor, and deepen it with Masticor for the flame.

XXVI. *For a Tree.* Take Umber and white, wrought with Umber, deepned with black.

XXVII. *For the Leaves.* Take Sap-green and green Bice, heighten it with Verditer and white.

XXVIII. *For Water.* Take Blew and White, deepned with blew, and heightened with white.

XXIX. *For Banks.* Take thin Umber, deepned with Umber and black.

XXX. *For Feathers.* Take Lake frizled with Red-lead. See Chap. 26. following.

C H A P. XXI.

Of Liquid Gold and Silver.

I. **L**iquid Gold and Silver.

Take five or six leaves of Gold or Silver, which grind (with a stiff Gum-lake water, and a good quantity of Salt) as small as you can; then put it into a vial or glazed vessel; add so much fair water as may dissolve the stiff gum-water; then let it stand four hours, that the Gold may settle: decant the water, and put in more, till the Gold is clean washed: to the Gold put more fair water, a little Sal-Armoniack and common Salt, digesting it close for four days: then put all into a piece of thin Glovers leather (whose grain is peeled off) and hang it up, so will the Sal-Armoniack fret away, and the Gold remain behind, which keep.

II. Or thus. Grind fine leaf Gold with strong or thick gum-water very fine; and as you grind add more thick gum-water being very fine, wash it in a great shell, as you do Bice, then temper it with a little quantity of Mercury sublimate, and a little dissolved gum to bind it in the shell; shake it, and spread the Gold about the sides thereof, that it may be all of one colour and fineness, which use with fair water, as you do other colours.

III. The same observe in liquid Silver; with this observation, That if your Silver, by length of time, or humidity of the air become rusty; then cover the place with juyce of Garlick before you lay on the Silver, which will preserve it.

IV. When you use it, temper it with glair of Eggs, and so use it with pen or pencil. Glair of Eggs is thus made. Take the whites and beat them with a spoon, till that rise all in a foam; then let them stand all night, and by morning they will be turned into clear water, which is good glair.

V. *Argentum Muscum.*

Take one ounce of Tin, melt it, and put thereto of Tartar and Quicksilver of each one ounce, stir them well together until they be cold, then beat it in a Mortar and grind it on a stone; mix it with gum water, write therewith, and afterwards polish it. See my *Ars Chyrurgica. lib. 1. Cap. 75. sect. 1. pag. 318.*
where

where you have an other way of making it.

VI. *Burnished Gold or Silver.*

Take Gum-lake and dissolve it into a stiff water; then grind a blade or two of Saffron therewith, and you shall have a fair Gold: when you have set it, being thoroughly dry, burnish it with a dogs tooth. Or *thus*, having writ with your pen or pencil what you please, cut the leaf Gold or Silver into pieces, according to the draught, which take up with a feather, and lay it upon the drawing, which press down with a piece of wool; and being dry, burnish it.

VII. *Gold Armoniack.*

This is nothing but that which we have taught at the fifth Section of the sixteenth Chapter of this Book.

VIII. *Size for burnishing Gold.*

Take fine Bole-Armoniack three drams, fine Chalk one dram; grind them as small as you can together with fair water, three or four times, letting it dry after every time: then take glair, and strain it as short as water, with which grind the Bole and Chalk, adding a little Gum-Hedera, and a few blades of Saffron: grind all as small as possible, and put them into an Ox horn (I judge a glass vessel better) and set it to rot in horse-dung for six weeks; then take it up, and let it have air, and keep it for use.

IX. *Its use is for gilding parchments, book-covers, and leather, thus lay this size first upon the parchments, then with a feather lay the Gold or Silver upon it, which when dry, burnish it.*

X. *To Diaper on Gold or Silver.*

You must Diaper on Gold with Lake and Yellow Oker, but upon Silver with Ceruse.

XI. *Aurum Musicum.*

Take fine Crystal, Orpiment, of each one ounce, beat each severally into a fine powder, then grind them together well with glair.

You may write with it, with pen or pencil, and your letter or draught will be of a good Gold color.

XII. *Another way to do the same.*

Take of the best English Tin, of the best Spanish Quick-silver, of each an ounce: make an Amalgama, by putting the Crude Mercury to the melted Tin, and stirring it together: then powder them well, and mix them with flowers of Sal-Armoniack, flowers of Sulphur, of each an ounce: Calcine gently till the Sulphur is consumed, so will the *Aurum* stick to the upper Crust or Scoria.

XIII.

XIII. This powdered fine, and ground with glair, will with Pen or Pencil give your Figure or Picture a Golden color. See the second Edition of my *Pharmacopœia Batavica*, lib. 1. cap. 9. sect. 28. § 2. ad. 10. pag. 339. where you have five other several ways of making it.

CHAP. XXII.

Of Preparing the Colors.

I. Colors, according to their natures have each a particular way of preparation: to wit, by grinding, washing or steeping.

II. The chief Colors to be ground are these; White-lead, Ceruse, Cinnaber-lake, Oker yellow and brown, Pink, Indico, Umber, Colens Earth, Spanish-brown, Ivory-black, Cherry-stone-black, Lamp-black, Indian-Red, Indian-Lake.

III. The chief Colors to be wash'd are Red-lead, Masticor, Green Bice, Cedar Green, Ultramarine, Blue Bice, Smalt, Verditer.

IV. The chief Colors to be steep'd, are Sap-green, Saffron, Turnsole, Stone-Blue, Venice Berries.

V. To grind Colors.

Take the Color you would grind, and scrape off from it all the filth, then lay it upon the stone, and with the muller bruise it a little; then put thereto a little spring water, and grind all together very well, till the color is very fine; which done, pour it out into certain hollows or furrows cut in Chalk-stone, and there let it lie till it is dry, which reserve in paper or glasses.

VI. In grinding your Colors, put not too much water to them, upon the stone for they ought to be ground somewhat thick, like pulp or pap: and they ought not to be left too moist, but thick and clammy.

VII. If after your Color is dry in the shell, you can rub it off with your fingers, it must be better bound with Gum; and if there is too much Gum, it will shine, and be apt to crackle off after it is used.

VIII. To wash Colors.

Put the color into a glazed vessel, and put thereto fair water plentifully, wash it well, and decant (after a while) the water

water; do this six or seven times; at last put the water (being just troubled) into another glazed vessel, leaving the dregs at bottom: then into this second vessel put more fair water, washing it as before, till the water (being settled) be clear, and the color remain fine at bottom: we have taught another way at the twenty fourth Section of the eighteenth Chapter of this Book.

IX. *Before you take the Color out of the Vessel, spread it very thin, about the sides thereof, and when it is dry, some of it will fall to the bottom, which keep by it self: but the remainder which sticks to the side of the Basen, is the best of all, which with a feather strike off from the sides of the Vessel, for it will be finer than any flower.*

X. *To steep Colors.*

Take a quantity thereof, and put it into a shell, and fill the shell with fair water, to which add some fine powder of Alum, to raise the color; let it thus steep a day and night, and you will have a good color.

XI. *Where note, Saffron steeped in Vinegar gives a good color; and the Venice Berries in fair water and a little Alum, or a drop or two of oyl of Vitriol makes a fair yellow.*

XII. *But some colors are to be boyled, as Brasil, Logwood, Turnsole, Rinds of Walnuts, Woodsoot, &c. these when boyled are to be kept close stopd in Glasses, till you have occasion to use them.*

XIII. *To temper the Colors.*

Take a little of any color, and put it into a clean shell, and add thereto a few drops of gum-water, and with your fingers work it about the shell, then let it dry; when dry, touch it with your fingers, if any color comes off, you must add stronger gum-water: but being dry, if the color glister or shine, it is a sign there is too much gum in it, which you may remedy by putting in fair water.

XIV. *To help the defects.*

Some colors, as Lake, Umber, and others which are hard, will crack when they are dry; in this case, in tempering them add a little white Sugar-candy in very fine powder, which mix with the color and fair water in the shell, till the Sugar-candy is dissolved.

XV. These colors, Umber, Spanish-brown, Colen Earth, Cherry-stone, and Ivory-black, are to be burnt before they be ground or wash'd.

XVI. *To burn or calcine Colors,*

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This is done in a crucible, covering the mouth thereof with clay, and setting it in a hot fire, till you are sure it is red-hot through: which done, being cold, wash or grind it as aforesaid.

XVII. To prepare shadows for Colours.

White is shaded with Black, and contrariwise: Yellow with Umber and the Okers: Vermillion with Lake: Blue-bice with Indie: Black-coal with Roset, &c.

XVIII. The several temperatures for coloring and shadowing of Histories.

They are twenty in number, viz. Sea-cole mixt with Lake. 2. Umber with Masticot. 3. Yellow Oker burnt with white. 4. Umber with Ultramarine. 5. Yellow with Umber. 6. Umber with Lake. 7. Verditer burnt with Red-lead and White. 8. Ultramarine with Lake. 9. Ultramarine with Red-lead. 10. Ultramarine with white. 11. Indico with white. 12. Indico and Lake with white. 13. Indico, Pink with white. 14. Indico with Oker and white. 15. Indico with Masticot and white. 16. Cherrystone burnt with White and Red-lead. 17. Burnt Ivory with Lake. 18. Indico and Pink with the best Rust of Iron. 19. Lake and Rust of Iron with light Pink. 20. Rust of Iron and Lake, for the deeper shadows.

XIX. The several temperatures or mixtures for shadowing Heads after the Life.

The principle mixtures are twelve in number, viz. 1. Lake with Indian Red. 2. Red-lead with Roman Oker. 3. Indian Red with Ultramarine. 4. Indian Red with Pink and Gall-stone. 5. Yellow Oker with Indico. 6. Red-lead with Pink and Indico. 7. Red-lead with Roman Oker and Indico. 8. Red-lead with Pink, Yellow Oker and Lake. 9. Indico, Lake and Roman Oker with white. 10. Indico, Pink, and Roman Oker with Indian Red. 11. Red-lead with Umber, Masticot, and Pink. 12. Pink with Roman Oker.

XX. The several mixtures for shadowing hair.

1. White and Roman Oker for light hair. 2. White and Yellow Oker for lighter hair. 3. White with Rust and Roman Oker. 4. Light Pink with Sea-Cole and Yellow Oker. 5. Dark Pink with Rust and Roman Oker. 6. Pink with the best Rust and Gall-stone. 7. Florence Pink with Lake and burnt Ivory, a good shadow for hair and face. 8. White with Umber and Yellow Oker, for light hair. 9. The last mixture with more Umber and Cherrystone black for a deeper hair

hair. 10. Yellow Ocher with Umber and Cherry-stone-black for dark hair. 11. The last mixture with Umber and Cherry-stone-black for a darker hair.

XXI. To do these things artificially, you may temper the natural Colors with your pencil upon your pallat, being first placed in order, then wet your pencil in water, and temper upon the color you intend to make use of first in your mixture; then rub your Pencil in a clean place of your Pallat, leaving part of the color upon the place.

XXII. And in the same manner take from as many of the other as shall be directed for such and such temperatures or mixtures. Or thus, Dip your finger in water, and temper or mix your colors as you did with your Pencil, placing your colors so mixed upon your pallat in order.

CH A P. XXIII.

Of the Manual Instruments.

I. **T**He manual Instruments are four (by the second Section of the fifteenth Chapter of this Book) to wit, The *Grinding-stone* and *Muller*, *Pencils*, *Tables* to Limn on, and *shells* or *little glasses* to hold your colors.

II. The *Grinding-stone* may be of *Porphyry*, *Serpentine* or *Marble*, but rather a *Pebble*, for that is the best of all others: The *Muller* only of *Pebble*, which keep very clean.

These may be easily got of Marblers or Stone-cutters in London.

III. Choose your pencils thus, by their fastness in the quills, and their sharp points after you have drawn or wetted them in your mouth two or three times; so that although larger, yet their points will come to as small as a hair, which then are good; but if they spread or have any extravagant hairs they are naught.

IV. *To wash your pencils.*

After using them, rub the ends of them well with Soap, then lay them a while in warm water to steep, then take them out and wash them well in other fair water.

V. *To prepare the Table.*

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It must be made of pure fine paste-board, such as Cards are made of (of what thickness you please) very finely slick'd and glazed with a Dogs tooth. Take a piece of this paste-board of the bigness you intend the Picture, and a piece of the finest and whitest parchment you can get (virgin parchment) which cut of equal bigness with the paste-board; with thin, white, new made starch, paste the parchment to the paste-board, with the outside of the skin out ward-most: lay on the starch very thin and even, being thus pasted let it dry thoroughly.

VI. Then the grinding stone being clean, lay the Card thereon with the parchment side downwards, and as hard as you can, rub the other side of the paste-board with a Boars-tooth set in a stick; then let it be thorow dry, and it will be fit to work or Limn any curious thing upon.

VII. The shells holding or containing your colours, ought to be Horse-muscle shells, which may be got in *July* about Rivers sides; but the next to these are small Muscle shells, or instead thereof little glase vessels in the same form if possible.

VIII. Your Table or Card being thus prepared, you are to lay a ground of flesh color, before you begin your work, and that must be tempered according to the complexion of the face to be drawn.

IX. If the complexion be fair, *Temper white Red lead and lake together.* If any hard, swarthy complexion, *Temper with your White and Red a little fine Masticot, or English Oker.* But note that your ground ought always to be fairer than the face you draw: for it is an easy matter to darken a light color, but a difficult to lighten a deep one.

X. Your ground thus prepared, lay it upon your Card, with a Pencil full of color, and rather thin and waterish, than thick and gross, and with two or three daubs of your great Pencil, lay it on in an instant, the nimbler it is laid on, the e-
vener the color will lye.

XI. Cover also rather too much of your Card, than too little, with this prime color; somewhat more of the Card with the ground color, than you shall use for the face.

XII. This done, take a pretty large Pillar of Ivory or Cocus-wood, and before you begin to work, temper certain little heaps of several shadows for the face, which you must mix with your finger, about the Pallar.

C H A P. XXIV.

Of Preparations for Limning.

I. **H**Ave two shells or small glasses, in either of which must be pure clean water, the one to wash the pencils in being foul; the other to temper the colors with, when there is occasion.

II. Besides the pencils you Limn with; a large, clean and dry pencil, to cleanse the work from any kind of dust, that may fall upon it, which are called *Fitch-pencils*.

III. A sharp Pen-knife to take off hairs that may come from your pencil, either among the colors or upon the work; or to take out spots that may fall upon the Card or Table.

IV. A paper with a hole cut therein to lay over the Card, to keep it from dust and filth, to rest your hand upon, and to keep the soil and sweat of your hand from sullyng the parchment, as also to try your pencils on before you use them.

Let the shells or small glasses, water, pencils and pen-knife lie all on the right hand.

V. Have ready a quantity of light Carnation or flesh color temper'd up in a shell by it self with a weak gum-water, if it be a fair complexion, mix White and Red-lead together; if a brown or swarthy, add to the former, Masticot, or English Oker, or both.

VI. But be sure the flesh color be always lighter than the complexion you would Limn; for by working on it you may bring it to its true color.

VII. In a large Horse-muscle shell place your several shadows (for the flesh color) in little places one distinct from another.

VIII. In all shadowings have ready some white, and lay a good quantity of it by it self besides what the shadows are first mixed with.

IX. For Red for the cheeks and lips, temper Lake and Red-lead together: for blew shadows (as under the eyes and in veins) Indico or Ultramarine and white.

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X. For gray faint shadows, white, English Oker, sometimes Masticot: for deep shadows, white, English Oker, Umber: for dark shadows, Lake and Pink, which make a good fleshy shadow.

XI. to make choice of the light.

Let it be fair and large and free from shadows of Trees or Houses, but all clear Skie-light, and let it be direct from above, and not transverse; let it be Northerly and not Southerly: and let the room be close and clean, and free from the Sun-beams.

XII. Of the manner of sitting.

Let your desk on which you work be so situate, that sitting before it, your left arm may be towards the light, that the light may strike sidling upon your work. Let the party that is to be Limned, be in what posture themselves will design, but not above two yards off you at most, and level with you.

XIII. Wherein observe their motion, if never so small, for the least motion, if not recalled, may in short time bring on you many errors.

XIV. Lastly, the face being finished, let the party stand (not sit) at a farther distance (four or five yards off) to draw the posture of his cloths.

XV. If you design to Limn upon Sattin; you must take ling-glass, and steep it four and twenty hours in water, then boyl it in spirit of Wine, until it be very clammy, which you will perceive by dipping your finger into it: then after your out-lines are drawn upon the Sattin, take an indifferent large pencil, and wash it thin over, as far as your out-lines are, which will prevent your colors from sinking or flowing.

XVI. To prevent your colors from sinking into your Card, Paper, or Parchment, you design to Limn on.

Take Roch-Alum, boyl it in spring water, then take a bit of a sponge, and wet the back-side of your paper, that you intend to draw on very thin, whilst the Water is hot, be as quick in wetting of it as you can; this will prevent the colors sinking.

XVII. Lastly, these general things are to be observed.

1. That if your colors peel, or by reason of the greasiness of your Parchment, will not lie on, you must mix with them a very little ear Wax, or Civet, and it will help them. 2. That sit you not above two yards from that you draw by. 3. That the person you draw, sit in a higher seat, than you that draw.

XVIII. 4. That you draw not any part in the face of a Picture, exactly at first; neither finish an Eye, Nose, or Mouth,

till the rest of your work come up, and be wrought together with it. 5. That when you have finished the Face, let the party stand up, to draw the Drapery by.

XIX. 6. That blew Bice is never used in a Face. 7. That black must not by any means be used : for other shadows, your own observation must direct you, it being impossible to give a general Rule for the shadows in all Faces.

CH A P. XXV.

Of the Practice of Limning in Miniture, or Drawing of a face in Colors.

I. **T**O begin the work.

Have all things in a readines (as before) then on the Card lay the prepared color (answerable to the complexion presented) even and thin, free from hairs and spots, over the place where the Picture is to be.

II. The ground thus laid, begin the work, the party being set, which must be done at three sittings : at the first sitting the face is only dead colored, which takes up about two hours time.

III. At the second sitting, go over the work more curiously, adding its particular graces or deformities, sweetly couching the colors, which will take up about five hours time.

IV. At the third sitting, finish the face, in which you must perfect all that is imperfect and rough, putting the deep shadows in the face, as in the eyes, eye-brows, and ears, which are the last of the work, and not to be done till the hair, curtain, or backside of the Picture, and the drapery be wholly finished.

V. *The operation or work at first sitting.*

The ground for the complexion being laid, draw the outlines of the face, which do with Lake and white mingled ; draw faintly, that if you miss in proportion or color you may alter it.

VI. This done, add to the former color Red-lead, for the cheeks and lips ; let it be but faint (for you cannot lighten

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a deep color) and make the shadows in their due places, as in the cheek, lips, tip of the chin and ears, the eyes and roots of the hair : shadow not with a flat pencil, but by small touches (as in hatching) and so go over the face.

VII. In this dead coloring rather than to be curious, strive as near as may be to imitate nature.

VIII. The red shadows being put in their due places ; shadow with a faint blew, about the corners and balls of the eyes ; and with a grayish blew under the eyes and about the temples, heightening the shadows as the light falls, also the harder shadows in the dark side of the face, under the eyebrows, chin and neck.

IX. Bring all the work to an equality, but add perfection to no particular part at this time ; but imitate the life in likeness, roundness, boldness, posture, color, and the like.

X. Lastly, touch at the hair with a suitable color in such curls, folds and form, as may either agree with the life, or grace the Picture : fill the empty places with color, and deepen it more strongly, than in the deepest shadowed before.

XI. *The operation or work at second sitting.*

As before rudely, so now you must sweeten those varieties which Nature affords, with the same colors and in the same places driving them one into another, yet so as that no lump or spot of color, or rough edge may appear in the whole work ; and this must be done with a pencil sharper than that which was used before.

XII. This done, go to the backside of the Picture which may be Landskip, or a curtain of blew or red Sattin : if of blew, temper as much Bice as will cover a Card, and let it be well mixed with gum ; with a pencil draw the out-lines of the curtain : as also of the whole Picture ; then with a large pencil lay thinly or airily over the whole ground, on which you mean to Limn the blew ; and then with a large pencil lay over the same a substantial body of color ; in doing of which be nimble, keeping the color moist, letting no part thereof be dry till the whole be covered.

XIII. If the curtain be Crimson, trace it out with Indian-Lake ; lay the ground with a thin color ; and lay the light with a thin and waterish color, where they fall ; and while the ground is yet wet, with a strong dark color tempered something thick, lay the strong and hard shadows close by the other lights.

XIV. Then lay the linnen with faint white, and the drapery flat of the color you intend it.

XV. In the face, see what shadows are too light or too deep, for the curtain behind, and drapery, and reduce each to their due perfection; draw the lines of the eye-lids, and shadow the entrance into the ear, deepness of the eye-brows, and eminent marks in the face, with a very sharp pencil.

XVI. Lastly, go over the hair, coloring it as it appears in the life, casting over the ground some loose locks or hairs, which will make the Picture stand as it were at a distance from the curtain.

XVII. *Shadow the linnen with white, black, and a little yellow and blew; and deepen your black, with Ivory-black mixed with a little Lake and Indico.*

XVIII. *The operation or work at third sitting.*

This third work is wholly spent in giving strong touches where you see cause, in rounding smoothing and coloring the face, which you better see to do, now the curtain and drapery is limned, than before.

XIX. And now observe whatsoever may conduce to the perfection of your work, as gesture, scars or moles, casts of the eyes, windings of the mouth, and the like; and be sure never to make your deepest shadows so deep as they appear in the life.

XX. *The ground color for hair, and how to heighten and deepen it.*

You must lay on the hair in miniture, of a Color not so light as the lightest, nor so deep as the deepest shadow, but in a middle proportion between both, on which you may either heighten or deepen at pleasure.

XXI. If you lay it on with the lightest color, it will require a long time to work it down; and if so dark as the deepest, you cannot deepen it lower with the same color.

XXII. Moreover you must lay this Ground color, extremely even and smooth, and the speedier you are in doing it, the better.

XXIII. In doing of it, use a Goose-quil-pencil, and let the temper thereof not be too thin, because the Parchment will appear then through the ground, which it ought to cover; and rather than it should so appear, when the first laid Ground is dry, go over the same again, with the same colors.

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C H A P. XXVI.

Of Limning Drapery.

I. **A** Full and substantial ground being laid all over where you intend the Drapery; as if blew, with Bice smoothly laid, deepen it with Lake and Indico; lightning it with a fine faint white, in the extreme light places, the which understand of other colors.

II. If the body you draw be in *Armour*, lay liquid Silver all over for a ground, which being well dried and burnished: shadow it with Silver, Indico, Litmose and Umber, according as the life directs you.

III. For *Gold Armour* lay liquid Gold as you did the Silver, and shadow upon it with Lake, English Oker, and a little Gold.

IV. Or thus, Take the finest shell Gold, and lay it flat and smooth on the place you intend for *Armour*: when it is dry, burnish it all over with a small Weefels or Dogs tooth, set in the end of a Pencil stick, but something longer.

V. For the shadows, temper lake, Roman Oker, and gall stone with a little shell Gold.

VI. The Heightnings being burnished, are to be left bright.

VII. In the fainter parts of the shadows, use a little shell Gold, and also in the deepest, which must be neatly and sweetly wrought into the Gold.

VIII. Also take Gall stone, and temper it with shell Gold, it gives an excellent lusture to all Gold works.

IX. In the darkest and deepest shadows, mix a little black. The heightnings are only the first Gold burnished very bright. See how to do Silver Armour at Sect. 52. following.

X. For *Pearls*, your ground must be Indico and white; the shadows black and pink. To express the roundness and lusture of a Pearl, shadow it with Indico, Cherry-stone black, and Pink.

XI. Or your Pearl may be laid with a white mixed with a little black, a little Indico and Mastick, but very little in comparison of the White, scarcely to the hundredth part: this be-

being dry, give the light of the *Pearl* with a little *Silver*, somewhat more to the light than the shadowed side.

XII. Then take a *White* allayed with *Masticot*, and underneath the shadowed side, give it a compassing stroke, which shews a reflection, then without that, a small shadow of *Sea-cole*, undermost of all; but note, your *Silver* must be laid round and full.

XIII. For *Diamonds*, lay a ground of liquid *Silver*, and deepen it with *Cherry-stone-black* and *Ivory-black*: the deeper the shadow, the fairer the *Diamond*.

XIV. For *Rubies*, lay a *Silver* ground, which burnish to the bigness of a *Ruby*; then with pure *Turpentine* temper'd with *Indian Lake*, from a small wire heated in a *Candle* drop upon the burnished place, fashioning it as you please with your Instruments, which let lie a day or two to dry; and if it be too long in drying, add to the composition a little powder of *Mastick*.

XV. For *Emeraulds*, or any green stone, temper *Turpentine* with *Verdigrise*, and a little *Turmerick* root, first scraped, with *Vinegar*, drying it, grind it to fine powder and mix it.

XVI. For *Saphires*, mix or temper *Ultramarine* with pure *Turpentine*, which lay upon a ground of liquid *Silver* polish: which must be the ground for all these stones.

To make liquid *Gold* or *Silver*: see the first Section of the twenty first Chapter of this Book.

XVII. For *Scarlet*, Temper *Carmine*, and deepen it with *Indian-Lake*. Or thus, Temper native *Cinnabar* and a little *Red-lead*, and shadow it with *Indian-Lake*.

XVIII. For *Crimson*, Temper *Cinnabar*, *Lake* and *White*: deepen it with *Lake*.

XIX. For *Carnation*, Temper *Lake* and *White*, and deepen or shadow it with *Lake*. For a *Peach Color*, Temper *Carmine* and a little *White*; and deepen or shadow it with *Lake*.

XX. For a *Violet*, Temper fine *Dutch-Bice* and *Lake*; and deepen it with *Indico*. For a *Purple*, Temper *Bice* and *Lake*, and a little *White*; and deepen it with *Lake* and *Indico*.

XXI. For an *Orange*: Temper the best *Red-Lead*, and a little fine yellow *Masticote*; shadow it with *Gall-stone* and *Lake*. For an *Orange Tawney*: Temper *Cinnabar*, light *Pink*,

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Pink, and a little yellow Masticot; shadow it with Gallstone and Lake.

XXII. For a Sea-green: Temper Bice, Pink, and White; and deepen it with Green Pink. For a French Green: Temper light Pink one part, with Dutch bice six parts; and deepen with green Pink.

XXIII. For Sky: Temper Ultramarine with a little White; and deepen with Indico. For Poppinjay: Temper Pink, and a little Indico: and deepen it with Indico.

XXIV. For Straw: Temper yellow Masticot with a very little Cinnabar; and deepen it with dark Pink. For a Lyon Tawney: Temper Red-lead and Masticot, and deepen it with Umber.

XXV. For Ash colour, Temper Cherry-stone and White; and deepen it with Ivory black. For a bright Red: Temper Indian Lake with native Cinnabar: The Indian Lake is the best of all other Lakes; but it being very scarce and dear, you may use Florence-Lake instead thereof.

XXVI. For all colors where Dutch-Bice is used, be sure to make choice of that which is very fine, or else you will find, that in working, it will lye very rough and uneven, and not cover well.

XXVII. And be sure that when you temper any of these colors for a Complexion or Garment, you temper it on your Pallat or shell with your finger; and temper them very well to mix them altogether, to make a good mixture and not too waterish.

XXVIII. Be sure also to preserve all your colors from dust, and before you temper either in the shell or upon your pallat, to brush it off with a large Pencil or Hairs foot, or to blow it off.

XXIX. In drawing of Cloths, be extream careful in habiting every one, according to the degrees and Functions of the person described, giving them also their right and proper colors.

XXX. For Example, the *Virgin Mary* is commonly represented in Purple and Azure. *John the Evangelist* in Scarlet. *John Baptist* in a Hairy Mantle. The rest of the Apostles in Green or Crimson.

XXXI. There are two ways of working Drapery, The first way is that which the *Italians* use; which is done with the point of a Pencil and hatching it.

XXXII.

XXXII. Some places are touched all over alike, yet so, as when it is finished, you may perceive the Parchment appear in several places, quite through the work, which is indeed too slight a way, and ought not to be called Limning, but Washing.

XXXIII. *The second way*, which is the best. First lay a good full flat ground all over where you design your Drapery, of what color you would have it : this done, you will find it much easier to work upon ; and you may either heighten or deepen it, according as your ingenuity or the Life shall direct you.

XXXIV. If you would have the Drapery blew, you may take an indifferent large Pencil with Ultramarine, or instead of that, Dutch-Bice well prepared ; let your Pencil be almost full of either of these colors, and therewith lay the color even and smooth, all over the place you intend for Drapery : this you may deepen with Lake and Indico. Heighten very faintly, and fair in the extreamest lights : the like observe in all other colors of Drapery whatsoever.

XXXV. Crimson Velvet, Red, Green, and Blew, may be heightned with fine shell Gold, it gives a most admirable ornament in cloth of Gold, especially if you mix some of the Gold, with the ground color it self, which will make it much the fairer. Thus great Painters heightned all their works of Architecture and Buildings, especially in stately Rooms and Palaces.

XXXVI. Be sure that you draw the out-lines of the Garment very true and faint, because the whole grace of a picture consists much in the outmost draught, and more than in the curious work within.

XXXVII. To do this, you must sure the Garments to the body, and make them bend and yield with it, and not strait and stiff where it benderh.

XXXVIII. To fit the Garments rightly to the body ; observe which part of the body bends in or out, that the Garments may answer to the body upon the least turning any way.

XXXIX. That the Garment may turn with it, you must observe where the body should be, if it were bare, and there form the Garments in the right places, making them to bend or sit out, according to the Joynts and Limbs, and sometimes plainly to appear through the Garments, and especially where they are driven by the wind, or any other action to lye loose from

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from the body. In this case express them lightly, and with a kind of transparency.

XL. Begin at the upper part of the Garment, and so draw down that part of the Garment (on both sides) that lies close to the body, before you draw the loose parts, that fly off from the body.

XLI. For if you draw the loose parts first, before you have finished those parts which lye close to the body or its parts, you will be presently out, and be apt to draw the body awry.

XLII. Therefore some great Artists draw lightly the naked body first, and put on the Garments afterwards, by which means they can better see to place the Cloathing rightly, and to hang even upon the body.

XLIII. You must also draw the greatest folds first, and so strike the greater folds into the less; and be sure that you make not one fold to cross another, Break also some of the folds into less; and make them the narrower, where the Garments fit closer.

XLIV. Observe also to order your Drapery so, that the folds may fall all one way, especially in a standing Figure, though it will be otherwise sometimes in a Figure that is drawn sitting.

XLV. For the Garments of a standing Figure, are lyable to be driven by the Air and therefore must be placed one way.

XLVI. Be sure also not to make folds, where the Garment should fit streight and close, as the Breasts, Knees, Thighs, &c. which bear them out, and therefore in such places ought always to fit plain.

XLVII. To shadow in Linnen: use black, white, a little yellow, and less blew: the black must be deepned with burnt Ivory, with which mix a little Lake and Indico, or Litmose-blue. For greater variety of Colours and Mixtures, see Chap. 20. beforegoing.

XLVIII. As for Sattens and Silks, and all other shining Stuffs, they ought to have certain bright reflections, exceeding bright, with sudden light Glances, especially where the light falls brightest; And so by how much the Garment falls the more inward from the light, by so much the Reflexions will be the less bright.

XLIX. The like is seen in Armour, Bras-Pots and Kettles, or any Gliftring Metal, where you see a sudden brightness in the

the middle or Center of the light, from the shining quality and disposition of those things.

L. Chased, Embossed or shining Armour. The lighter places of it must be sparkling, which you may express by raising the high and round places, with a Temper of Gall-stone, and Roman Oker, by touching with your pencil full of the Color of it, over and over, in one and the same place, till the Touches be raised above the other work.

LI. Then cover over the raised work, with the finest shell Gold, (that is made at Antwerp) and burnish it with a Weefels Tooth; and the like if it be Silver Embossed.

LII. Silver Armour. Take shell Silver, and lay it on, as you did the Gold (at Sect. 3. above,) and burnish it also when it is dry, as you did the Gold.

LIII. For the shadows, temper Lake and Indico, with a very little Umber: work all the shadows down even and smooth, according to what you observe in the Life.

LIV. The heightnings are to be left (the Silver being brightly burnished) as in the Gold. The thinner part of the shadows, being part of the depth of the shadows, must be tempered with a little shell Silver, and sweetly and neatly wrought into the Silver, being laid very flat and even as before mentioned.

LV. Cherrystone burnt, Dark, Pink, and Rust of Iron, are a very good shadow for Embossed Silver Armour: so also is Ivory Black mixt with Dark Pink.

C H A P. XXVII.

Of Limning Landskip.

ALL the variable expressions of Landskip are innumerable, they being as many as there are men and fancies; the general rules follow.

I. Always begin with the Sky, Sun-beams or lightest parts first; next the yellowish beams (which make of Massicot and white) next the blueness of the Sky, (which make of Ultramarine or Smalt only:) for purple Clouds, only mix Lake and white.

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II. At first working, dead Color all the Piece over, leave no part of the ground uncovered, but lay the Colors smooth all over.

III. Work the Sky downwards, towards the Horizon fainter and fainter, as it draws nearer and nearer the earth, except in tempestuous Skies: the tops of mountains far remote, work so faint that they may appear as lost in the Air.

IV. Let places low, and near the ground be of the color of the earth, of a dark yellowish, or brown, or green; the next lighter green; and so successively as they lose in distance, let them abate in color.

V. Make nothing which you see at a distance perfect, by expressing any particular sign which it hath, but express it in colors, as weakly and faintly as the eye judgeth of it.

VI. Always place light against darkness and darkness against light, by which means you may extend the prospect as a very far off.

VII. Let all shadows loose their force as they remove from the eye; always letting the strongest shadow be nearest hand.

VIII. Lastly, Take Icinglass in small pieces half an ounce, fair Conduit-water two quarts, boil it till the glass is dissolved, which save for use: with which mix spirit or oyl of Cloves, Roses, Cinnamon or Ambergriese, and lay it on and about the Picture where it is not colored (lest it should change the colors: but upon the colors use it without the perfumes) so it will varnish your Pictures, and give them a gloss, retaining the glory of their colors, and take from them any ill scent which they might otherwise retain.

See the way of tempering Colors for Shadowing, in Chap. 22. Sect. 13. foregoing.

IX. For Trees you must have a dark Green, which you may make by mixing *Verditer* with *Pink* and *Indico*: the deepest shadows of all in *Green*, are made with *Sap-green* and *Indico*.

X. *To preserve your Colors in Limning.*

Take *Rosemary-water* double distilled, or pure Spirit of *Rosemary*, and with a few drops of it, temper your shell of white. However dead and faded it was before, it will instantly become perfect white. This Water or Spirit hinders also the Bubbles in *White* and *Umber*, which are troublesome in Grinding.

C H A P. XXVIII.

Of Light and Shadow.

I. **L**ights and shades set in their proper places in such a just and equal proportion, as Nature doth give, or the life require, give a true Idea of the thing we would represent; so that 'tis not any color whatsoever, nor any single stroak or stroaks which is the cause thereof, but that excellent Symmetry of Light and Shadow, which gives the true resemblance of the light.

II. In shadowing, be careful you spoil not your work by too gross a darkness, whether it be hard or soft.

III. This Observation of light and dark is that which causeth all things contained in your work to come forward or fall backward, and makes every thing from the first to the last to stand in their just places, whereby the distance between thing and thing seems to go from you or come to you as if it were the work of Nature it self.

IV. Suppose it were a plaister Figure, take good notice what appears forwards and what backwards, or how things succeed one another; then consider the cause which makes them in appearance either to incline or recline, and consider the degrees of light and darkness, and whether they fall forward or backward, accordingly in your draught give first gentle touches, and after that heighten by degrees according as the example and your own ingenuity shall direct.

V. Those parts are to be heightn'd in your work which appear highest in your Pattern: The greatest life which we can give on white paper is the paper it self, all lesser lights must be faintly shadowed in proportion to their respective degrees.

VI. But on colored paper white Crions and Tobaccopipe-clay are used for the first and second heightenings, putting each in their proper places, as more or less light is required, which is a singular observation in this manner of drawing.

VII. Then you must take heed you heighten not too many places, nor heighten any thing more than what is needful, nor too near the dark or shadows, or any out-line, (except where

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where you intend some reflexion,) lest your work shew hard and rough.

VIII. In heightening, or such figures as require great light, put the greatest light in the middle, and the lesser towards the edges for the better perspicuity of your work.

IX. Lastly, leave sufficient faint places on the ground of your paper between your lights and shades, that they may appear pleasantly with a singular plainness and smoothness.

X. Reflection, is to be used in delineating, glittering, or shining bodies, as Glass, Pearl, Silver, &c. let the cause of the reflection, be it more or less, be seen in the thing it self.

XI. In plain drawing, lay all your shades smooth, whether it be in hatching or smutching, keeping every thing within its own bounds, and this is done by not making your shades at first too hard, or putting one shadow upon another too dark.

XII. Observe that the greater parts of light and shadows, and the small parts intermixt in the same, may always so correspond as thereby to make more appearent the greater.

XIII. In Pictures, let the highest light of the whole, (if any darkness stand in the middle of it) appear more dark than indeed it is : and in working always compare light with light, and dark with dark, by which you will find the power of each, and the general use thereof in all operations.

XIV. Let all your lights be placed one way in the whole work, whether in the Figure, Face, or Garments.

XV. If the light fall sideways on the Picture, you must make the other side which is farthest from the light darkest, and let the lights be placed all together on the other side, and not confusedly on both sides, as if it stood in the midst of many lights, for the body cannot be lightned equally in all places.

XVI. But when you express a Dungeon or Prison with a Torch lighted in it, you must observe that every thing in it, as well as the Garments, must receive their lights from it, and therefore must be shadowed all on the contrary side, which observe in all shadowings of the same kind.

XVII. The true and natural disposition of light, is that which gives the principal grace to a Picture, for that without its due light, is clearly another thing.

XVIII. And although so, it may be beautiful in its kind, so far as it is wrought ; but if afterwards it shall be shadowed without judgment and Art, so that the shadows be

be confusedly placed, where the *lights* ought to be; or contrariwise, the *lights* where the *shadows* should be; and the *Concavities* and *Convexities* out of their natural situations, the work will not only be confused, but wholly spoiled.

XIX. Whereas on the contrary having *lights* rightly disposed, it so mightily adds to the perfection of the Figure, that it makes the *Flat* or *Plane* seem to be *imbossed*.

XX. And thus *light* rightly disposed, does that in the *Painters* work, which *substance* or *matter* does in the *Carvers* work; insomuch that they seem to be *Imbossed* outwards, such is the force of *light* and *shadow*.

XXI. And herein you will find admirable *scenes* and *foreshortnings*, proceeding purely from the true disposition of the *light*; without which the Figure would not only be imperfect, but lose also much of its grace; though otherwise well proportioned and placed.

XXII. This *light* is the cause or formal reason whereby colored things are seen, whose *Shapes* and *Images* pass to the *Phantasy*, and especially inlighten the eyes in which the Image is formed; which first passeth to the *Common-sense*, afterwards to the *Phantasy*, and last of all to the understanding; whereby every thing is discovered to be what indeed it is.

XXIII. In respect of this *light*, three things occur to our visive faculty, viz. the visual lines, the colored body, and the faculty of seeing, which is in the eye.

XXIV. The *Visual lines lightened*, (which are the proper subject of *Perspective*) come to the eye in a *Pyramidal* form, the base of which *Pyramis* resteth in the object; and the *Cone* or *Angle* thereof comes to the eye more blunt or obtuse, if the said object be near; but more sharp or acute, if it be farther off, whereby it is not so clearly or easily discerned, as otherwise it would.

XXV. The colored *Object* or *Body*, comes not to the eye, but its visible species or shapes are diffused through the clearness of the *Air* unto the *Eye*; which species are only certain Images like those we see in a *Glass*.

XXVI. And if the colored body stand near to this Image, it comes to our eye in the same quantity and bigness of the *Angel* of the *Pyramis*, which being obtuse or blunt, makes the Image seem as great as indeed it is, and so discerned the more distinctly.

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XXVII. But if far off, the visible species appears less, according to the proportion of the distance and acuteness of the Pyramidal Angle.

XXVIII. *The faculty of seeing* is formed by the Concurrence of the other two things, viz. the visual lines, and the colored body; which informeth the eye by reducing it from meer Ability into Act, and so performing its operations, and causing the thing also to be seen more apparently and distinctly.

XXIX. From hence it is apparent, that the self-same body cannot be equally lightened in all places. 1. Because the light doth not directly illuminate any more than that part which is directly opposite to it; the other parts which are oblique to it are illustrated more imperfectly, by reason of the interception or obliquity of an opaque body, through which its beams cannot pierce.

XXX. 2. From the several distances of the eye to the parts of the same body; for as the first part of the body is seen and placed nearest the eye, and so comes to it with a more obtuse Angle, so being more lightened, it is also seen more distinctly, whereas the other parts being farther off, come to the eye in a more acute Angle, and being lesser lightened, cannot be so plainly seen.

XXXI. If two, three, or four men stood one behind another, all of them equally receiving the light; yet in respect of your eye they do not; and therefore by the former Doctrine, you must paint the second which is farthest off from the eye darker, the third darker than that, and the fourth darkest of all, and so on if there be more, till the eye can see no farther.

XXXII. The reason is, because the second standing farther off, comes to the eye with a lesser Angle (as aforesaid) whereby it cannot be seen so evidently as the first, the same reason is for the third, fourth, fifth, &c.

XXXIII. The same thing is also to be understood, if the visible species of one or many objects be seen sideways, for according to their distance and obliquity to the eye, so you must shadow them.

XXXIV. That part of the body must be made lightest, which has the light most opposite to it: if the light be placed above the head descending; then the top of the head must be made lightest, the shoulder next lightest, and

so you must shadow, by losing the light by degrees.

XXXV. That part of the body which stands farthest out, must be made lightest, because it comes nearest to the light, and the light loses so much of its brightness, by how much any part of the body bends inward, because those parts which stick out, do hinder the Glory and full Brightness of the light from those parts that fall any thing more hollow.

XXXVI Therefore, by how much one part of the body sticks out beyond another, by so much it must be made lighter than the other, and *è contrario*, so much the darker.

CHAP. XXIX.

Of Colors more particularly.

I. **O**ker is a good color, and much in use for shadows, in Pictures of the life, both for Hair and Drapery: In Landskips it is used for Rocks and High-ways.

II. *Pink*, the fairest, with blew, makes the fastest greens for Landskip and Drapery.

III. Sap-green and green-bice are good in their kind; but the first is so transparent and thin, the other of so coarse and gross body, that in many things they will be useless, especially where a beautiful green (made of Pink and Bice mixed with Indico) is required.

IV. *Umber*, is a greasie foul color; but being calcined and ground, it works sharp and neat.

V. *Spanish-brown*, is exceeding coarse and full of gravel; being prepared, it is used for a mixture made of Red-lead mixt with a little Umber, which makes the same color.

VI. *Colens earth* or *Terra Lemnia*, it is used to close up the last and deepest touches in the shadows of Pictures of the life, and in Landskips; use it when new ground.

VII. *Cherry stone-black*, is very good for Drapery and black apparel: mixt with Indico, it is excellent for Sattin; it appears more beautiful or shining if mixed with a little white: if deepned with Ivory-black, in hard reflections, and strong deep touches, it is wonderful fair.

VIII. *Ivory black*, it serves for a deep black, but is not easie to work without it be well tempered with Sugar-candy, to prevent peeling.

IX. *Red-lead*, well wash'd, is a good color, but *Vermilion* for those pieces which require an exquisite redness.

X. *Indian-Lake*, is the dearest and most beautiful of all ordinary reds; it is to be ground as white-lead, and mixt with a little white Sugar-candy and fair water, till the color and Sugar-candy be throughly dissolved, which being dry will lie very fast, without danger of cracking or peeling.

CHAP. XXX.

Observations of making some Original Colors.

I. *To make white-lead.*

Put into an earthen pot or Crucible several plates of fine Lead, cover them with White-wine Vinegar, covering the top of the pot close with clay, bury it in a Cellar for seven or eight weeks, and you will have good white lead upon the plates, which wipe off.

II. *To make Verdigrise.*

This is made by hanging plates of Copper over the fumes of *Aqua fortis*, or spirit of Nitre, or by dipping them in the same or in Vinegar.

III. *To make an Emerald Color.*

Take Verdigrise in fine powder, which temper with varnish, and lay it upon a ground of liquid Silver burnisht, and you have a fair Emerald.

IV. *To make a Ruby colour.*

Mix the same with Florence Lake, and you shall have a very fair color.

V. *To make a Sapphire color.*

The same, viz Verdigrise mixt with Ultramarine, makes a glorious Sapphire.

VI. *To make a Crimson Velvet.*

Take Turnsole and mix it with Indian-lake (well ground with gum and Sugar-candy) lay it full, and when it is wet wipe away the color with a dry pencil, where you would,

have the heightning of the Crimson Velvet appear, and the stronger reflections will be well expressed.

V. I. *To make a Silver black.*

Take fine Silver filings or plates, which dissolve in spirit of Nitre or *Aqua fortis*, and evaporate to driness, or precipitate cum *Oleo Sulphuris* or Salt-water, and you shall have a snow-white precipitate, which mixt with water makes the best black in the world, to dy all manner of Hair, Horns, Bones, Wood, Metals, &c.

VIII. *To make a Murry or Amethyst.*

It is made of Indian Lake ground with Gum-Arabick water only.

IX. *To make a Red or Ruby for Limning.*

It is made of Indian-Lake (which breaks of a Scarlet color) ground with Gum-water and Sugar-candy.

X. *To make Azure blew or Sapphire.*

It is made of Ultramarine of *Venice* (which is best) the best blew Smalt, or blew bice ground with gum-water only: you may make good shadowing blews of Indico, Flory and Litmote, all which need no washing, nor Litmose no grinding, but only infused in a Lixivium of Soap-ashes.

XI. *To make a Green or Emerald.*

It is made of Cedar green: in place whereof, take Green-Bice to draw with: Pink is good also for Landskips, mixed with Bice-ashes; as also with Masticot and Ceruse.

XII. *To make a Yellow or Topaz.*

It is made of Masticot which is the best, of which there are divers sorts, viz. deeper and paler: Yellow-Oker also for want of better may do. Shadow Masticot with Yellow-Oker deepen it with Oker-de Luce.

XIII. *To make Ultramarine.*

Take the deepest colored *Lapis Lazuli* (having few veins of Gold upon it) heat it red-hot in a Crucible close covered, then quench it in Urine, Vinegar or Water in a Leaded earthen pot, dry it well, then with a pair of pinfers nip off the hard, gray, and whitest part from it, and grind the remainder with honied water as fine as may be, then dry it for use. The honied water is made of water a quart, boiled with honey two spoonfuls.

C H A P. XXXI.

The sum of the Observations of Limning to the life in general.

I. **L**ET the Table be prepared very exactly by the fifth rule of the twenty third Chapter of this second Book.

II. Let the ground be of flesh color, tempering it according to the complexion to be painted.

III. If it be a fair complexion, mix a good quantity of Red and White-Lead together somewhat thick.

IV. If swarthy or brown, mix with the former a little fine Masticot or English Oker, or both, always observing that your ground be fairer than the complexion painted.

For fairness may be shadowed or darkened at pleasure; but if it be sad or dark, you can never heighten it, for in Limning, the picture is always wrought down to its exact color.

V. Lay the ground upon the Card or Tablet, with a larger pencil than ordinary, free from spots, scratches of the pencil, or dust, and as even as possible may be; and let the color be rather thin and waterish than too thick, doing it very quick and nimbly with two or three dashes of the pencil.

VI. This done, prepare your shadows in order, by the seventh rule of the four and twentieth Chapter of this second Book.

VII. Then draw the out-lines of the face with Lake and white mingled together very fine; so that if you should mistake in your first draught, you may with a strong stroak draw it true, the other line by reason of its faintness being no hinderance.

These lines must be truly drawn, sharp and neat, with the greatest exactness imaginable.

VIII. Observe the most remarkable and deep shadows which keep in memory when you go over them with more exactness; drawing out also (if you so please) the shape of that part of the body next adjoining to the face, viz. a little beneath the shoulders, with a strong and dark color, which in case of mistake in proportion may easily be altered.

IX. The first sitting is to dead color the face: the second sitting is the exact coloring and observation of the several shadows, graces, beauties or deformities, as they are in Nature: the third sitting is making smooth what was before rough and rude; cloathing what was naked, and giving strong and deepning touches to every respective shadow.

X. The dead color is thus made.

Take of the aforesaid ground (at the third or fourth Section of this Chapter) and mix it with fine Red lead, tempering it exactly to a dead color of the cheeks and lips, having a great care, that you make it not too deep; which if light, you may do at pleasure.

XI. The face is first begun to be coloured in the reds of the cheeks and lips, and somewhat strongly in the bottom of the chin (if beardless) also over, under, and about the eyes with a faint redness.

XII. The ear is most commonly reddish, as also sometimes the roots of the hair.

XIII. The ground being wash'd over with this reddish or dead color, let the shadows be as well bold and strong as exact and curious.

XIV. *A good Picture, if but dead colored only, and seeming near hand very rough, uneven and unpleasant, yet being boldly and strongly done and shadowed will appear very smooth, delicate, and neat, if but viewed at a distance from the eye.*

XV. Therefore curiosity and neatness of Color, is not so much to be regarded, as bold, lofty, and strong expressing what is seen in the life.

XVI. The next thing to be done is the use of the faint blews, about the corners and balls of the eyes and temples, which you must work out exceeding sweetly, and faint by degrees.

XVII. Always be sure to make the hard shadows fall in the dark side of the face, under the nose, chin, and eye-brows, as the light falls, with somewhat strong touches.

XVIII. The light shadows being done and smoothed, work the hair into such forms, curlings, and dispositions as best adorn the piece.

XIX. *First draw it with colors, neatly and to the life; then wash it roughly as the rest; and the next time perfect it: filling up the empty places with color, and the partings thereof with blew.*

XX. And ever remember, when you would have your colors or shadows deep, strong, and bold ; that you do them by degrees, beginning faintly, and then encreasing the same.

XXI. First, use the former colors in the same places again, driving and sweetning them into one another, that no part may look uneven, or with an edge, or patch of color, but altogether equally mixt and disperfed, lying soft and smooth, like smoak or vapours.

XXII. Secondly, this work being done for an hour or two, lay the ground for behind the Picture of Blew, or Crimson, like to a Sattin or Velvet Curtain.

XXIII. If blew, let it be done with Bice well tempered in a shell : First draw the out-lines with the same color, with a small pencil : then with a thin and waterish blew wash over the whole ground with a larger pencil.

XXIV. Lastly, with thicker color cover the same which you before wash'd, swiftly, that it dry not before all be covered, so will it lie smooth and even.

XXV. If Crimson, work with Indian-lake, in those places where the strong lights, and high reflections fall, let the light be done with thin and waterish Lake ; the deepning and strong shadows, close by the light with thicker color : this done, the Picture will be much changed ; the beauty of these grounds will much darken and deaden it.

XXVI. Let the apparel with suitable colors be done only flat with heightening or deepning ; and then go over the face again, reducing the shadows to smoothness and neatness with a sharp and curious pencil : drawing the eyes, the lines of the eye-lids ; redness of the nostrils ; shadow of the ears : deepness of the eye-brows, and those other remarkable marks of the face.

XXVII. *So sweetning the out-lines of the face (by darkning the ground, above from the light side, and below on the dark side) that when the work is done, the ground may stand as it were at a distance from the face behind ; and the face may seem to stand off forward from the ground.*

XXVIII. Then go over the hair, making it light or deep by the life : and in apparel make the several folds and shadows, and what else is to be imitated, as it is in the life it self ; lightning the lines with the purest white, a little yellow and some blew ; and deepning with Ivory black, and heightning with black mixed with a little Lake or Indico.

XXIX. This done, and the person gone, your work being yet rough, by your self polish it, and strive to make it smooth and pleasant, filling up the empty places, and sweetning the shadows, which yet lie uneven and hard.

XXX. The apparel, hair, and ground being finished, now give strong touches for the rounding of the face; and observe whatsoever may conduce to liknels and resemblance, as moles, smilings, or glancings of the eyes, motion of the mouth, &c.

XXXI. For which purpose, you may find an occasion of discourse, or cause the person to be in action, and to look merrily and chearfully.

XXXII. Lastly conclude, that the eye gives the life; the nose the favor; the mouth the liknels; and the chin the grace.

XXXIII. In fair colored Drapery, if the lightning be done with fine shell Gold it will add a most wonderful lusture, and be a singular ornament to your works; and if this Gold be mixt with the very ground it self, the apparel will appear much the fairer.

XXXIV. *The Dead coloring of a whole figure designed for Historical Limning.*

It is twofold. 1. To temper a flesh color somewhat lighter than you intend it to be after it is wrought down by the Variety of *shadowing mixtures*, which flesh color you must temper in a large shell, because it requires a quantity; it must be of a good mixture, neither too thick nor too thin.

XXXV. Then take a Goose-quil-pencil full of the color, and lay it on quick, even, and smooth, on the place where you design the Figure; if you be not very nimble in the laying it on, it will not lye even.

XXXVI. The other way is thus. Instead of flesh Color, make use of the best *Lake-white*, well prepared, and lay it on with the same sized Pencil as before mentioned, and so your dead Color is as the Oyl-painters do, which must be done free, rough, and boldest of all.

XXXVII. But note, That you draw all the out-lines of your figure first with a *Temperature of Lake and White*, before you lay the ground Color for the flesh. Also, in *dead coloring*, leave not your shadows too dark, harsh, or hard, next to the light, but faint, even and misty.

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XXXVIII. This done, *mix Flake-White, and a little Red lead*, with which touch all the deep places both in Face and Body, as your ingenuity, or the life shall direct you.

XXXIX. This do extream faint, because if you lay it too dark, you cannot heighten it up again, without running the hazard of spoiling of it, but if too light, you may deepen it by degrees at your pleasure.

XL. In the face make a delicate faintness, or faint Red inclining to a Purple, under the Eyes; then touch the tips of the Ears, with the aforementioned mixture, as also the Cheeks, Lips, and the bottom of the Chin, and so go on to the soal of the foot, touching in all the following Muscles and places with this glowing color.

XLI. Then *mix Gal-stone and Pink*, for the general yellowish glowing shadows, and in some places add to the former mixture or temperature, a little *Lake*.

XLII. Moreover you will perceive in the life, a faint blewish color in some parts of the body, which you may express with a temperature or mixture of *Indico and White*, and so proceed according to the subject you draw after, whether the *life* or *copying* after *Painting*.

XLIII. All these shadows are to be expressed after the manner of hatching with a Pen, with gentle and faint strokes washing it along.

XLIV. But in this *Dead coloring*. See that you cover your ground-color with the aforesaid Red and other shadows.

XLV. And be not too curious in the first working, but rather make choice of a good, free, and bold following of nature, than to affect an extream neat, set, or starcht way.

XLVI. Let not the roughness of your color discourage you, for that is to be wrought down and couched by degrees with the other shadows, but not at first.

XLVII. Then by degrees sweeten and heighten your shadows according as the light falls.

XLVIII. In some places touch it with strong touches, and in those places bring your work up together, to an equal roundness and strength, not finishing any part of the figure before the other, but visiting and working all the parts curiously alike, but in a manner at Random.

XLIX. Then observe the roundness, coloring, and shadowing, or whatever else is requisite to the perfection of the Work.

L Having done with the fainter shadows, sweeten and work them into the Red still.

LI. Carefully observe all the variety of coloring, and with your pencil curiously delineate those several varieties of nature which you had rudely traced out before.

LII. To do this, make use of the same color in the same places as you did before, working, driving, and sweetening the same colors one into another; that nothing be left in your work with a harsh edge, uneven, or in a lump, but all as it were sweet, or driven one into another with the point of somewhat a sharper pencil than you use at first, so that your shadows may lye dispersed, soft, sweet, smooth, and gently extended one into another like Air.

LIII. Lastly, observe, that Skies, Waters, Trees, Plants, Flowers, and Ground, are all to be dead colored before the Figures.

LIV. *How to draw with Indian Ink.*

It is done after the manner of Washing: Or, instead of the *Indian Ink*, you may temper *Lamp-black*, or *bread burnt*.

LV. Take your *Indian Ink*, or *Lamp-black*; and temper it with fair-water, in a shell, or upon your hand, your out-lines being drawn with Cole, or Black-lead, take an indifferent long sharp pointed pencil, dip the point into fair water, then dip the pencil into *Indian Ink*, and draw all your out-lines very faint.

LVI. (Note that all the temperature of *Indian Ink* must be thin and waterish, not too black.)

LVII. When it is dry, take a little bit of stale white bread, and rub out the out-lines which you drew with the Cole, (if too black) then dash on your shadows very faintly, and deepen it by degrees, as you shall think convenient, and finish it with Stipp'es, it being most advantageous to any one that shall practise Limning.

LVIII. Beware of taking too much color in your pencil, which you may prevent by first drawing it through your lips.

LIX In laying on your shadows, never lay them too deep, but deepen them down by degrees; for if too deep you can never beighten them again.

C H A P. XXXII.

Of Limning Landskip, more particularly.

I. **T**O make the Tablet for Landskip.

Take a piece of Vellum, and shave it thin upon a Frame, fastning it with paste or glew, and pasting it upon a board; these manner of Tablets are altogether used in Italy for Landskip, and History.

II. If you draw a Landskip from the life, take your station from the rise of ground, or top of an hill, where you shall have a large Horizon, marking your Tablet into three divisions downwards from the top to the bottom.

III. Then your face being directly opposed to the midst of the finitor, keeping your body fixed, depict what is directly before your eyes, upon your Tablet on your middle division, then turning your head (not your body) to the right hand, depict what is there to be seen: adjoining it to the former. In like manner doing by that which is to be seen on the left hand, your Landskip will be compleated.

IV. Make every thing exact, not only in respect of distance, proportion and color; but also in respect of form, as if there be Hills, Dales, Rocks, Mountains, Cataracts, Ruines, Aqueducts, Towns, Cities, Castles, Fortifications, or whatsoever else may present it self to view; making always a fair Sky, to be seen afar off; letting your light always descend from the left hand to the right.

V. In beginning your work, first begin with a large Skye; and if there be any shining or reflection of the Sun, beware you mix no Red-lead in the Purple of the Sky, or Clouds, but only with Lake and white: the yellow and whitish beams of Sol work with Masticot and white.

VI. Then with a fresh or clean pencil finish the blewish Sky, and Clouds, with smalt only: at the first working, dead all the work over, with colors suitable to the Air, green Meadows, Trees, and Ground, laying them somewhat smooth, not very curiously, but slightly and hastily.

VII. Make a large Sky, which work down in the Horizon, faintly, but fair; and drawing nearer to the Earth, let the

the remote Mountains appear sweet and misty, almost indistinguishable, joyning with the Clouds, and as it were lost in the Air.

VIII. The next ground color downwards must encrease in magnitude of reason, as nearer^e the eyes, somewhat blewish or Sea-green: but drawing towards the first ground, let them decline into a reddish or popinjay-green.

IX. The last ground color, must be nearest the color of the earth, *viz.* a dark yellow, brown and green; with which, or some color near it, you must make your first Trees.

X. Making them, as they come near in distance, to encrease proportionably in color and magnitude, with great judgment; the leaves flowing and falling one with another, some apparent, others lost in shadow.

XI. Let your Landskip lie low, and as it were under the eye (which is most graceful and natural) with a large and full Sky not rising high, and lifting it self into the top of the piece, as some have done.

XII. Be sure to make your shadows fall all one way, *viz.* to make light against darkness, and darkness against light; thereby extending the prospect, and making it to shew as a far off; by losing its force and vigour, by the remoteness from the eye.

XIII. In touching the Trees, Boughs and Branches, put all the dark shadows first, raising the lighter leaves above the darker, by adding Masticot to the dark green, which may be made with Bice, Pink, and Indico.

XIV. The uppermost of all, exprest last of all, by lightly touching the exterior edges of some of the former leaves, with a little green, Masticot, and white: the darkest shadows you may set off with Sap-green and Indico.

XV. Trees and their Leaves, Rivers, and Mountains far distant, you must strive to exprest with a certain real softness and delicateness.

XVI. In making Cataracts, great falls of Waters, and Rocks, you must first lay a full ground near the color, then with a stronger in the dark places, and slight heightning in the light.

XVII. Remark all disproportions, cracks, ruptures and various representations of infinitely differing matters; the manner whercof is abundantly exprest, in almost every Landskip.

Horat.

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Horat. Epod. 16.

Vos, quibus est virtus, muliebrem tollite luctum,
 Etrusca præter & volate littora.
 Nos manet Oceanus circumvagus; arva, beata
 Petamus arva, divites & insulas:
 Reddit ubi Cererem tellus inarata quotannis,
 Et imputata floret usquæ vinea.
 Germinet & nunquam fallentis termes olivæ,
 Suâque pulla ficus ornat arborem.
 Illis injussæ veniunt ad mulctra capellæ;
 Refertque tenta grex amicus ubera.
 Nec Vespertinus circumgemit Ursus ovile;
 Nec intumescit alta Viperis humus:
 Plurâque felices mirabimur: ut neque largis
 Aquosus Eurus arva radat imbribus,
 Pinguia nec siccis urantur semina glebis:
 Utrumque rege temperante Cœlitum.
 Non huc Argoo contendit remige pinus,
 Neque impudica Colchis intulit pedem
 Non huc Sidonii torserunt cornua nautæ,
 Laboriosa nec cohors Ulyssæi.
 Nulla nocent pecori contagia, nullius astrî
 Gregem æstuosa torret impotentia.
 Jupiter illa piæ secrevit littora genti,
 Ut inquinavit ære tempus aureum.

You nobler spirits, hence with womens tears,
 Sail from Etruscan confines free from fears:
 The Earth-encircling Ocean us invites,
 Rich Islands, Fields, Fields blest with all delights.
 Where Lands untill'd are yearly fruitful seen,
 And the unpruned Vine perpetual green.
 Sill, Olives by the faithful branch are born,
 And mellow Figgs, there native Trees adorn.
 There, milchy Goats come freely to the pail,
 Nor do glad flocks with dugs distended fail.
 The nightly Bear roars not about the fold,
 Nor hollow earth doth poisonous Vipers held.
 Add to this happiness, the humid East
 Doth not with frequent showers the Fields infect.

Nor

Nor the fat seeds are parcht in barren land,
 The powers above both temp'ring with command.
 No Bark came hither with Argoan oar,
 Nor landed wanton Colchis on this shoar:
 Cadmus with filled sails turn'd not this way,
 Nor painful troops that with Ulysses stray.
 Here amongst cattle no contagions are,
 Nor feel flocks droughby power of any star.
 When brass did on the Golden Age intrude,
 Jove for the pious did this place seclude.

C H A P. XXXIII.

Of the various Forms or Degrees of Coloring.

I. **T** Here are four various Forms or degrees of coloring,
 viz. 1. Of Infants, or Children. 2. Of Virgins, or fair
 Women. 3. Naked Bodies. 4. Old or aged bodies.

II. Infants or young Children are to be painted of a soft
 and delicate complexion; the Skin and ears of a ruddy and
 pleasant color, almost transparent.

III. This may be done with White lead, Lake, and a little
 Red lead; shadowing it thin, faint and soft; letting the
 Cheeks, Lips, Chin, Fingers, Knees, and Toes, be more ruddy
 than other parts; making all their Linnen very fine, thin,
 and transparent, or perspicuous, with strong touches in the
 thickest folds.

IV. Virgins and fair Women are as curiously to be express'd
 as the former, but their Muscles are to be more apparent,
 their shape more perfect; and their shadows to be of a whit-
 ish yellow, blewish, and in some places almost purple.

V. But the most perfect and exquisite direction is the life,
 which ought rather to be followed than any thing delivered
 by rule.

VI. For the shadows here, mix white with Pink; and Indico
 and white; and in some places Lake, with a little Indico and
 white.

VII. As for Womens Bodies, viz. such as are naked, they are
 to be represented soft, round, plump, gentle and tender, and
 without many Muscles.

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VIII. *On the contrary, Mens Bodies are to be represented strong, sturdy, stout, and vigorous with the Muscles exactly placed and drawn, which to do with Judgment and Understanding, requires time, study, and knowledge in Anatomy.*

IX. *Naked Bodies are to be painted strong, lively, and accurate; exactly matching the respective pairs of Muscles and Nerves, fixing each Artery in its due and proper place, giving each limb its proper motion form and situation, with its true and natural color; all which to do well may be the study and practice of almost ones whole life.*

X. *Old or aged Bodies ought to be eminent for exact and curious shadows, which may be made of Pink, Lake, and Ivory-black, which made notable shadows, in appearance like the wrinkles and furrows of the face and hand in extreme old age.*

XI. *Let the eyes be dark, the aspect melancholy, the hair white (or else the pate bald) and all the remarks of Antiquity or age be very apparent and formidable.*

XII. *Pink mixt with Lake and Red-lead, make an excellent shadow for old Mens Bodies: but for the extreamest or deepest shadowings either in face or body, mix Lake and Ivory-black, which will make an excellent deep shadow, and will be very useful in expressing of the several furrows and wrinkles in the face and hands of people extremely Aged, with their dark Eyes and melancholy Aspects.*

XIII. *But notwithstanding all the foregoing rules, the posture or form of standing, and being, either of the whole body, or any of its parts, ought diligently to be observed, that the life may be imitated.*

XIV. *In which, it only lies in the brest and judgment of the Painter to set it off with such various colors, as may best besit the respective complexion and accidental shadows of each accidental position or posture, which are sometimes more pale, sometimes more ruddy; sometimes more faint, sometimes more lively.*

C H A P. XXXIV.

Of the Limning of the Skie, Clouds, &c.

I. **F**OR a beautiful Sky, fitted for fair weather, take Bice tempered with white, laying it in the upper part of the Sky, (as you see need) under which you may lay a thin or faint purple with a small soft brush: working the undermost purple into the uppermost blew; but so as that the blew may stand clear and perfect.

II. Then for the Horizon or near the same lay a fine thin Masticot, which work from below upwards, till it mix with the purple, after which you may take a stronger purple, making here and there upon the former purple, as it were the form of Clouds, as nature requires.

III. Upon the Masticot you may also work with Minium mixed with Ceruse, to imitate the fiery beams which often appear in hot and clear Summer weather.

IV. To imitate glory, with a great shining light of a yellowish color or the Sun-beams, you must take Masticot or Saffron mixt with Red-lead, and heightened with shell gold, and the like.

V. A Cloudy Sky is imitated with pale Bice, afterwards shading the Clouds with a mixture of several colors: a fair Sky requires clouds of a greater shade, with purple.

VI. The clouds in a rainy Sky, must be shaded with Indico and Lake: in a night Sky, with black and dark blew, smoaky, making a blaze with purple, Minium and Ceruse.

VII. The clouds in a Sun rising or setting must be done with Minium, Ceruse and purple, making underneath the clouds scattering stroaks, with Minium and Masticot, or Minium and Saffron; so that the scattering upwards may appear faint; and below, afar off near the Landskip, somewhat fiery.

VIII. A fiery Sky, let be made with a pale blew, smoothing it downwards, which afterwards, you must mingle with a strong Red-lead, mixt with Ceruse, making long diminutive stroaks like the Sun-beams upon the blew Sky, with which, let fall some purple stroaks, much like the said beams; then, sweeten

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sweeten one into another with a soft brush pencil, wet in gum-water, not too strong.

IX. Lastly, you may make a fair Sky, by using fair Bice alone, and tempering it by degrees with more and more white, smoothing one into another, from above downwards, and shading it as you shall see reason and nature require.

C H A P. XXXV.

Of the Limning of Towns, Castles, and Ruines.

I. **T**Hose Towns, or Cities, which seem at farthest distance, must have but little shadowing or heightning, and sometimes none at all, these if they appear against the Sky, must be laid with Bice, and a little purple, and shaded faintly with a good blew.

II. Those which lie at a farther distance, must be laid with Bice and purple as aforesaid, and shaded with light blew, and heightned with white.

III. Those which appear at an ordinary distance, must be done with Vermillion and purple, and shaded with a strong purple shaded with white.

IV. Those which are near, must be done with Vermillion and white, and then shaded with a strong Vermillion and brown Oker, mixt with white.

C H A P. XXXVI.

Of Mountains, Hills, and the like.

I. **T**Hose Mountains which are next in sight, must be laid with a fair green, and shaded with Sap-green; sometimes with brown Oker, and French Berries, to distinguish them from such as are farther off.

II. Such as lie farther off, must be laid with green, blew, and Masticor, and be shaded with blew, green, and Verdigrise.

III. Such as lie yet farther, must be laid with some strong blew, white, and Bergh-green, and shaded with strong blew.

IV. Such as lie yet farther, must be laid with strong blew and white, and shaded with blew only.

V. Such as lie yet farther, with Bice and white, and shaded with Bice.

VI. Such as lie farther off, are only laid with white, and shaded with a faint Bice.

VII. Fields being near, must be done with a singular good green, the which must always be faintest, according as they are farther distant; heightning them with Masticor, or a light green, and shadowing with Sap-green, but not too much.

VIII. Those which lie far, are to be laid with a French berry yellow, made of a blew greenish; shaded with Oker.

IX. And in Fields, Hills, and Dales (whether near or far off) there are many roads, passages and ways, which must be laid either fainter or stronger according to their distance and situation.

C H A P. XXXVII.

Of Trees, Boughs, Cottages, and the like.

I. **T**Hose Trees of divers colors which stand upon the foreground, must be laid with divers colors, as with Verdigrise, mixt with other green, or with Masticor, and Bergh-green mixt, and then shaded with Sap-green; which you may heighten with Masticor, mixt with White-lead.

II. If they appear yellow, use Verdigrise and Masticor mixt, and shadow with Verdigrise.

III. If they be of a whitish color, let them be laid with Verdigrise mixt with White-lead, and shade them with Verdigrise, mixt with Indico faint; heighten them with Ceruse, that

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that they may look of a faint yellow green ; or else with a little Indico and yellow.

IV. Those which stand at a great distance, lay with Indico, and white, and shadow with Indico, and heighten with the same made a little lighter.

V. If Trees be very old with moss upon them, give them the appearance of green and yellow, which commix with Pink, and Bergh-green : if they be of a whitish yellow, do them with Pink and white mixt with a little green.

VI. Country Cottages lay with light Oker, which order according to the newness or oldness of the building.

VII. Cottages of Timber, let be laid of the color of Trees and Wood-work.

VIII. Thatcht Cottages if new, lay with Pink, shadow with brown Oker, and heighten with Masticot mixt with white: but if old, lay them with brown Oker mixt with white, and heighten with the same.

IX. Straw colors at a distance are done with Indico and white, mixt sometimes with brown Oker, and shaded with Indico.

C H A P. XXXVIII.

Of the Coloring of Naked Figures.

I. **F**OR *Women and Children*, take the best Flake White-lead, and a little good Lake, with which if you please you may mix a little Vermillion, but take heed that your mixture be neither too red or too pale, but exactly agreeable to the life it self ; the which in this case is the best director.

II. This being dry, touch the lips, cheeks, chin, fingers, and toes with thin Lake, and then heighten with white mixt with a little Lake or Vermillion.

III. But if you would cover them somewhat brownish, mix with your Carnation, a little brown Oker ; and shade it with Red-Oker, and coal-black with a little Lake.

IV. In old Women take White, Vermillion and Brown-Oker, and give the lustre where it ought to be with Vermillion mixt with a little Lake.

V. Shade it with Red-Oker and Lake, or with Wood soot, or Lamp-black, and heighten with white mixt with a small quantity of Vermillion.

VI. Dead Children and young Women, paint with Brown-Oker, white and some Vermillion, and shadow the same with the soot of wood.

VII. Dead old Women color with Brown-Oker mixt with a little white, which shade with a thin soot of wood first, then with a stronger.

VIII. Young men paint with Ceruse, Vermillion and Lake, making it a little browner than for young Women; giving them lustre with Vermillion and Lake, shadowing with Lamp-black and Brown-Oker; and heightning with Ceruse and Vermillion.

IX. Old Men Limn with Vermillion, Brown-Oker, and white; shade with soot and Lamp-black; heighten with Vermillion, Brown-Oker, and white, and give it a lustre with Lake or Vermillion.

X. Dead men color with Brown-Oker, white, and a little Vermillion, as your discretion shall inform you, and shade with soot, or Lamp-black mixt with a little Ceruse.

XI. Devils, Satyrs, and the like Limn with brown-Oker, mixt with a little white and red, which mixture let be made some part whiter, some part browner; and strongly shade it with soot, as your own ingenuity may inform you.

[C H A P. XXXIX.

Of the Coloring of Hair.

I. **T**HE Hair of Women and Children is colored with simple Brown-Oker, and heightned with Masticor: The same in the hair of men, only making it sadder or lighter as the life requires.

II. Hair which is black may be done with soot, or Lamp-black, but it will abide no heightning.

III.

III. Childrens Hair is sometimes laid with brown-Oker and White, and heightned with the same; and sometimes with Alom.

IV. Sometimes also they are done with light-oker, and deepned with brown-oker, and heightned with Masticot simple.

V. Old Womens Hair with brown-oker and black, heightned with Brown-oker and white.

VI. In Gray Hair take more black than white, and heighten with pure white.

C H A P. XL.

Of Walls, Chambers, and the like.

I. **F**OR a brick Wall take Vermillion and white, and shadow with Red-oker.

II. If the ground of the wall is laid with black and white, shade it with a thin black, if with Red-Oker and white, shade it with purple: or with Lake and black, or Red-oker simple.

III. If it be laid with black, white, and purple, shade it with purple and black.

IV. If the wall belongs to any Chamber or Hall, having Figures or Statues; so order and temper your colors, with such distinction, that the Figures and Wall be not drowned in each other.

V. Sandy fore-grounds do thinly with brown-oker, sad or light as the life presents; shadow the same with the same brown-oker, and Rocks with Red-oker, according as they are near to, or far from the sight.

C H A P. XLI.

Of Marble Pillars, Rocks, and the like.

I. **M**arble must be done with a good and light pencil, after a careless manner in imitation of Nature, wherein all such stains, colors, veins: and representations of the faces of living things must be carefully observed.

II. The like is to be observed in Rocks, of Sandy colors, and ragged forms; which if seen at a great distance, must be colored with thin Bice, and then heightened with purple and white, and shaded with Smalt or a deep blew.

III. If they seem near, color them with brown-oker mixt with white, which go over again with Vermillion mixt with white, after which lay here and there some Verdigrise mixt with some other green.

IV. In these works you must make spots, stains and breakings, with hatchings, which shade with the foot of Wood or Lamp-black mixt with a little white.

C H A P. XLII.

Of the Coloring of Metals.

I. **F**OR Gold color, take Red-lead, Saffron, and very light Oker, with which color all manner of Cups, Dishes and the like, which shade with foot, and heighten with shell Gold.

II. For Silver, lay a thin white, which shade with a thin blew, mixt with a little black, and heighten with shell Silver.

III. For Tin and Iron, take white and Indico, and shade it with Indico and Bice, and heighten with white or shell Silver.

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IV. For *Brass*, take thin *Pink*, shade it with *Indico* mixt with *green*, or with almost all *Indico*, and heighten it with *shell Gold*.

V. For *Copper*, take *Red-oker* and *white*, shade it with *Red-oker*, and heighten with *Red-oker* and *white*, heightning also here and there, where the light falls, with *shell Silver*.

C H A P. XLIII.

Of the Coloring of Flowers.

I. **T**HE *Tulip*, draw it first with *black-lead* upon a *white* ground, then shade it a little (as for a *white Flower*) with thin *Indian Ink*, or with *green yellow Ink*, or with *black-lead ground* with thick *gum-water*.

II. Then lay on your several colors resembling *Nature*, which being dry, shade with a higher color, and then farther shadowv it, according to the nature of the flower.

III. So that being finished it may be like *flame*, *Red*, *Bleuv*, *Lake*, *Purple*, *Spotted*, or othervvise, in imitation of the life.

IV. The *Damask Rose*, lay vvith *Lake* mixt vvith vvwhite, shadowv vvith the same mixt vvith thin *Lake*; and heighten vvith vvwhite.

V. The *green leaves*, are done vvith *Verdigrise* mixt vvith some *French berry green*, shade it vvith *Verdigrise* mixt vvith *Sap-green*; the stalks lay some vvhat browvner vvith browv-oker.

VI. *Red Roses* do vvith fine *Lake* mixt vvith vvwhite, shade it vvith browvn *Lake*, and heighten it vvith *Lake* mixt vvith vvwhite.

VII. *White Roses* color vvith *Flake Lead*, shade it vvith *white* and *black* (but the chief shadowvs vvith a stronger *black*) and heighten vvith vvwhite.

VIII. The little *thrums* (vvhich some erroneously call *seeds*) in the middle of the *Rose*, lay vvith *Masticot*, and shadowv vvith *Minium*, and heighten vvith vvwhite.

IX. *The Clove gilliflower* is done almost like the Red-rose: the speckling or spotting of it is done vvith Lake; those vvhich are lighter, vvith a lighter red upon a pure vvbite; those like flames vvith Vermillion and Lake, vvich shade vvith a stronger Lake; and speck the vvbite vvith Lake and Vermillion, to resemble the life.

X. *The green stalks, or branches and leaves* lay with Bergh-green, and shade vvith Sap-green.

XI. *The Marigold* do vvith yellowv Orpiment and Minium, shadovv vvith Vermillion and Lakemixt vvith Minium; and heighten vvith vvwhite and Mastigor.

XII. *Corn-flowers* lay vvith blevv mixt vvith some vvwhite, shadovv vvith Indico, and shadovv vvith blevv and vvwhite.

C H A P. XLIV.

Of Radishes, Turneps, Melons, Cucumbers, and Cabbage.

I. **R**adishes are done vvith vvwhite, shaded vvith Lake, and as it vvwere behind svveerned vvith purple: and sometimes vvith green from the top downnvards.

II. *The green leaves* at top vvith Verdigrise mixed vvith Sap-green, shaded vvith Sap-green, and heightned vvith Masticot.

III. *Turneps* are laid vvith vvwhite, shaded vvith soot; the leaves as the Radish leaves.

IV. *Yellow Melons* vvith yellowv, shaded vvith brovvv-oker, the veins vvith a stronger brovvv-oker, and then heightned vvith vvwhite.

V. *Green Melons* vvith Indico mixt vvith Verdigrise and Sap-green, shaded vvith Sap-green and Indico; and heightned vvith Masticot.

VI. *Cucumbers*, the ends vvith a thin yellowv, the middle vvith green, sweetned the one into the other, and shaded vvith Sap-green; but the vvhole fruit vvith brovvv-oker, the specks lay vvith red and black to the life.

VII. *Cabbage white* vvith very thin yellowv, and in some places vvith very thingreen (or yellowish green) (sweetning with very

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very thin brown-oker mixt with Sap-green, heighten with pure white.

VIII. *Cabbage red*, lay with purple, shade wit Lake, and heighten with purple mixt with white.

C H A P. XLV.

How to Color Fruits.

I. *Cherries*, with Vermillion and some Brazil, shade with Lake, heighten with Vermillion mixt with white.

II. *Heart Cherries* in the middle with Vermillion and Lake mixt with white, the Circumference remaining whitish, here and there sweetning them with Lake, and heightning with white, or mixt with a little Lake.

III. *A Pear* with Masticot, shaded sweetly with brown-oker; its blush with Lake not too high, heighten with white.

IV. *Apples* with a thin Masticot mixt with Verdigrise, shade them with brown-oker, and give their blush with a thin or deep Lake (resembling Nature,) and heighten with white.

V. If you will have them very high, mix your white with some Masticot, but this must be according to the condition of the Fruit whether ripe or unripe, red, yellow or green, &c.

VI. *Mulberries* with a very strong Brazil, and then lay'd over with black, so that between the stalks and berries they may look a little reddish according to Nature.

VII. *Strawberries* with a white ground, which draw over with Vermillion and Lake very thin; shade it with fine Lake, and heighten with Masticot mixt with Minium; and then with white only speck them with Lake, by one side of which put a smaller speck of white.

VIII. *Wall-nuts* with their green on, with Verdigrise mixt with Sap-green, shade with Sap-green and a little white.

IX. *Wall-nuts* without their green, with brown-oker, shaded with foot.

X. *Blew Plumbs* with purple, shadowed with Bice, and about the stalks with a little green, well sweetned ; heighten with purple and white.

XI. *White Plumbs* and Peaches with thin Masticot, shaded with brown-oker ; give them a blush with Lake, and heighten them with white.

XII. *Red and Blew Grapes* with purple, shaded with blew, and heightened with white.

XIII. *White Grapes* with thin Verdigrise (called also *Spanish green*) mixt with Masticot, shadow with thin Verdigrise ; and heighten with Masticot mixt with white.

C H A P. XLVI.

Of the Limning of Fowls.

I. **T**he *Eagle* with black and brown-oker, shadow it with black, the feathers heighten with brown-oker mixt with white.

II. The bill and claws lay with Saffron, and shade it with foot or Lamp-black : the eyes with Vermillion heightned with Masticot, or with Saffron shaded or deepned with Vermillion ; let the talons be done with black.

III. *The Swan* with white mixt with a little black, heighten it with fine and pure white, so that its plumes or feathers by that heightning may look vvell : the legs vwith a black color.

IV. *The bill* vwith Vermillion, shaded vwith Lake : the eyes yellow vwith a black round in the middle ; from vvhich falls a blackish vein, descending to the bill.

V. *The Goose* vwith more vvhite than black, viz. a light gray, heighten it vwith a gray vvhite ; the legs vwith black : the bill like the Swan.

VI. *The Duck* vwith a light grey, the head vwith a dark blew, and dark green neck sweetly entervvoven, the belly vwith vvhite, the legs vwith black mixt vwith a little vvhite, &c. but be sure to imitate the life.

VII. *The Turkey* with black mixt with a little white, from the back towards the belly whiter by degrees, but the belly speck with black, and in like manner the wings.

VIII. Let him be shaded with black, the wings with Indico, shaded with stronger Indico, the bill with black, the eyes blew, heightned with white.

IX. He being angry, the naked skin of his neck will be blood red, which lay with Vermillion mixt with Lake, shaded with Lake: but otherwise lay it of a whitish blew-color.

X. *The Griffon* with Saffron, shaded with brown-oker or foot.

XI. *The Pheasant* with grey, made of white and black, the feathers of a white grey, the whole must be shaded with black, and heightned with pure white; the eyes like the Falcon, the legs with Pink, and shaded with black.

XII. *The Falcon* with brown oker, and black mixt with white, and shadowed with black, and sprinkled upon its brest; heighten it with white, let his talons be black, above the eyes lay with Saffron, and shade with Vermilion, the bill with grey.

XIII. *The Stork* with grey, heightned with white, and the corners of his wings (near one half) with black, his long bill and legs with Vermilion, shaded with lake.

XIV. *The Owl* with Ceruse, black and foot, shadowed with foot, and heightned with yellow-Oker and white, sometimes white alone, the eyes yellow, circled with white, the legs of a brown yellow.

C H A P. XLVII.

Of Limning of Beasts.

I. *Sheep* lay with a thin white, shaded vvith Indico and foot, and heightned vvith vvwhite.

II. *Hogs* lay vvith brown-oker, shaded vvith foot, and heightned vvith Masticot: you may as you see occasion color the hair here and there vvith stronger brown-oker; his eyes vvith Ver-

Vermilion, vvith heighten vvith Masticot, his mouth vvith Indico, or vvwhite and black, shaded vvith black.

III. *A Bear* vvith brovvv-oker, red-oker, and black mixt; shadowv vvith foot alone, or mixt vvith black, and heighten vvith brovvv oker and vvwhite.

IV. *A Woolf* vvith brovvv-oker and foot, shadowv vvith more foot.

V. *A gray Woolf* with black, white, and brown-oker, shaded with black and foot, or black only; the mouth with black and red-oker, shaded with black and foot heightned with red-oker and white.

VI. *The Elephant* (which is of a Mouse gray) with black and white mixt with foot, and shaded with black and foot, and heightned with the same, with a little more white.

VII. *The nose at the end of his trunk*, inwardly must be laid with Vermilion and Ceruse, shadowed with black, or black mixt with Lake: in the same manner the inner part of the ears, the eyes with white tending to a grey.

VIII. *Mice* are colored as the *Elephant*: *Rats* a little browner.

IX. *The Unicorn* with a pure white, shaded with black: the chaps red, the eye and hoofs with a thin black.

X. *The Hart* with brown-oker, shaded on the back with foot, which sweetly drive towards the belly, and shade over again with a stronger foot.

XI. *The neck and belly* with white, the mouth and ears a little reddish, the hoof black, the horns with foot, and shaded with foot mixt with black.

XII. *The Hind* with the same colors as the *Hart*, but thinner, and higher, not so brown.

XIII. *The Coney* with black and white, his belly all white, sweetned with black; and heightned with a stronger white.

XIV. *The Hair* with brown-oker, his belly below a little whitish; shade it on the back with foot, and heighten on the belly with white.

XV. *Apes, Monkeys* and the like, with Pink and black, heightned with Masticot and white; the face, lay with a thin black mixt with foot, shaded with black and Pink mixt with a little red-oker.

XVI. *Cats* if gray and brownish, or tabby, with Indico⁹ blew and white, heightned with pure white, and shaded with
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Indian-blew and black mixt: in other colors use your discretion.

XVII. *The As* with black mixt with white like grey; if the *As* be of a mingled brown, black and white mixt with brown-oker, shaded with black in the mouth; heighten with white.

XVIII. *The Lepoard* with brown-oker and red-oker mixt with black, shadow it with foot, the spots with red-oker and black, the mouth with black and white: heighten him with light oker.

XIX. *Horses, Dogs, Oxen* and such like, if white, with white mixt with a little foot, or oker, shaded with a little black and white, and heightened with perfect white.

XX. *If of a Chestnut-brown*, with red-oker and black shaded with black and foot, and heightened with red oker and white.

XXI. *If an Asse-grey*, with black mixt with white, shaded with black, and heightened with white.

XXII. *If black*, with a thin black, shaded with a stronger black, and heightened with black and white.

XXIII. *A bay Horse* with Vermilion and brown-oker; or only with red-chalk, shaded with red-oker, and heightened with red-chalk mixt vvith vvwhite.

XXIV. *If spotted*, by mixture of the aforesaid colors and discretely putting every one in its proper apartment or place.

CHAP. XLVIII.

Of the Limning of Serpents.

I. *The Serpent* on the back with Bice, and down-wards towards the belly with a pale black, the back speckled with black specks.

II. *The Adder* with red-lead, Vermilion and Saffron, with blew in the back, and on the belly below Matticot and white, speckled all over with black spots.

III. *The Crocodile* with a dark thin green, from the back downwards to the belly.

IV.

IV. *Below the belly* with Masticor, so that the yellow and green may melt, or vanish away into one another; shadow him with Indico and smalt, and heighten the belly with Masticor and vvwhite.

V. *The mouth* before and vvithin redish, the scales black, the clavvs of blackish green, the nails vvholly black.

VI. *The Frog* vvith a fair green, speckled vvith black, and towards the belly vvith green mixt vvith Masticor, sveetned vvith green speckled: the eyes vvith Saffron, and black round them, the back heightned vvith Saffron.

C H A P. XLIX.

Of Limning Wáters and Fish.

I. *Water* at a distance with white and Indico, shaded with Indico mixt with Bice, and heightned with white: if near the Horizon much like the Sky.

II. *Waters near* lay with stronger Indico, heighten and shadow with the same mixt with Bice: lastly heighten with pure white.

III. *Waters nearer* with stronger Indico, shaded and heightned as before.

IV. *Waters in fields overgrown*, with Pink and the like; always imitating Nature.

V. *Fish* in green Waters, with Indico mixt with French-berry-yellow, shaded with a thin Indian-blew, and heightned with pure white.

VI. *But Fishes* ought also to be done according to their Nature and Color, for some are yellow, some brown, some speckled, some gristed, some black, &c. in all which to conserve in Figure the true Idea, you ought to take directions only by the life.

Libri Secundi F I N I S.

P O L T.

POLYGRAPHICES

LIBER TERTIUS.

Of Painting, Washing, Coloring, &c.

*Containing the Description and Use of
all the chief Instruments and Materi-
als, and the way and manner of Work-
ing.*

CHAP. I.

Of Painting in General.

I. **T**HE Art of *Painting* (which is the imitation of Nature) consists in three things, to wit, *Design*, *Proportion*, and *Color* : all which are express'd in three sorts of Painting, viz. *Landskip*, *History* and *Life*.

II. *Landskip* or *Perspective*, wonderfully respects freedom and liberty, to draw even what you please. *History* respects proportion and figure : *Life* respects color ; in each of which there is a necessary dependency of all the other.

III. The work of the Painter is to express the exact imitation of natural things ; wherein you are to observe the excellencies and beauties of the piece, but to refuse its vices.

IV.

IV. For a piece of *Painting* may in some part want *Diligence*, *Boldness*, *Subtlety*, *Grace*, *Magnificence*, &c. while it is sufficiently in other parts excellent; and therefore you are not so much to imitate *Ornaments*, as to express the inward power and strength.

V. In *Imitation*, always be sure to follow the examples and patterns of the best masters; lest evil precedents beget in you an evil habit.

VI. The force of *Imitation* resides in the fancy or imagination, where we conceive (what we have seen) the form or *Idea* of that, or those things which we would represent in lines and colors.

VII. This *Fancy* or *Imagination* is strengthened, by lodging therein all variety of visible rarities; as 1. Forms made by light and darkness; such as are to be seen in Summer in the clouds, near Sun-setting (which vanish before they can be imitated.)

VIII. 2. Forms made by proximity or distance of place, such as are Trees, Woods, Buildings, appearing perfect being near, or confused in their parts being far off.

IX. 3. Forms of dreams, of which (whether sleeping or waking) the fancy must be fully posselt.

X. Where *Design* is required; you must fancy every circumstance of the matter in hand, that in an instant, with a nimble hand, you may depict the same with liveliness and grace.

XI. Slow performance causes a preturbation in the fancy, cooling of the mind, and destruction of that passion which should carry the work on: but quickness and diligence brings forth things even excellent indeed: Care, Industry and Exercise are the props, supporters and upholders of Art.

XII. Be sure you dwell not too long upon designing: alter not what is well, lest for want of exquisite judgment you make it worse: and if in designing, you want that ability to follow the quickness of fancy, submit to a willing negligence; a careless operation adds sometimes such a singular grace, as by too much curiosity would have been totally lost; then by reviewing what is done, make a regular connexion of all the *Idea's* conceived in your mind.

XIII. With *Apelles* amend those things which others justly find fault with; the reprehensions of an Artist are as demonstrative rules of experience; and weigh every ones opinion for the advancement of Art.

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XIV. Lastly, be sure your piece be of a good *Design*, *History* or *Life* ; that the parts be well *disposed*, the Characters of Persons, *proper* ; the Form *magnificent*, the color *lively*, and the spirit *bold* : that it may appear to be the work of a nimble fancy, ready memory, clear judgment, and large experience.

CHAP. II.

Of Painting in Oyl, and the Materials thereof.

I. **P**Ainting in Oyl is nothing but the Work or Art of Limning performed with colors made up or mixed with Oyl.

II. The Materials of Painting are chiefly Seven, 1. *The Easel*. 2. *The Pallet*. 3. *The Streining Frame*. 4. *The Primed Cloath*. 5. *Pencils*. 6. *The Stay*. 7. *Colors*.

III. *The Easel* is a Frame made of wood (much like a Ladder) with sides flat, and full of holes, to put in two pins to set your work upon, higher or lower at pleasure ; something broader at bottom than at the top : on the back side whereof is a stay, by which you may set the *Easel* more upright or sloping.

IV. *The Pallet* is a thin piece of Wood, (Pear-tree or Walnut) a foot long, and about ten inches broad, almost like an Egg, at the narrowest end of which is made an hole to put in the thumb of the left hand, near to which is cut a notch, that so you may hold the *Pallet* in your hand. *Its use is to hold and temper the Colors upon.*

V. *The Streining Frame* is made of wood, to which with nails is fastned the *Primed Cloath*, which is to be Painted upon.

These ought to be of several sizes according to the bigness of the Cloath.

VI. *The Primed Cloath* is that which is to be Painted upon, and is thus prepared.

Take good *Canvas* and smooth it over with a slick-stone, size it over with size, and a little honey, and let it dry ; then white it over once with whiting and size mixed with a little honey, so

is the Cloath prepared, on which you may draw the Picture with a Coal; and lastly lay on the Colors.

Where note, honey keeps it from crackling, peeling or breaking out.

VII. Pencils are of all bignesses, from a pin to the bigness of a finger, called by several names, as Ducks-quill fitched and pointed; Goose-quill fitched and pointed; Swans-quill fitched and pointed; Jewelling pencils, and bristle pencils: some in quills, some in Tin cases, and some in sticks.

VIII. The Stay or Molsstick, is a Brazil stick (or the like) of a yard long; having at the one end thereof, a little ball of Cotten, fixed hard in a piece of Leather, of the bigness of a Chestnut; which when you are at work you must hold in your left hand; and laying the end which hath the Leather ball upon the Cloath or Frame, you may rest your right arm upon it, whilst you are at work.

IX. The Colors are in number seven (*ut supra*) to wit, White, Black, Red, Green, Yellow, Blew, and Brown.

Of which some may be tempered on the Pallet at first, some must be ground, and then tempered; and other some must be burnt, ground, and lastly tempered.

X. To make the Size for the Primed cloath at the sixth Section of this Chapter.

Take Glem, and boil it well in fair water, till it be dissolved, and it is done.

XI. To make the Whiting for the sixth Section of this Chapter.

Take of the aforesaid Size, mix it with whiting ground, and so white your boards or cloath (being made smooth) dry them, and white them a second or third time; lastly, scrape them smooth, and draw it over with White-lead tempered with Oyl.

XII. To keep the Colors from skinning.

Oyl Colors (if not presently used) will have a skin grow over them, to prevent which put them into a glass, and put the glass three or four inches under water, so will they neither skin nor dry.

XIII. To cleanse the Grinding-stone and Pencils.

If the Grinding stone be foul, grind Curriers shavings upon it, and then crumbs of bread, so will the filth come off: if the pencils be foul, dip the ends of them in oyl of Turpentine, and squeeze them between your fingers, and they will be very clean.

C H A P. III.

Of the Colors in General, and their significations.

I. **T**He chief *Whites* for Painting in Oyl are, White-lead, Ceruse and Spodium.

II. The chief *Blacks* are Lamp-black, Seacoal-black, Ivory-black, Charcoal, and Earth of Colen.

III. The chief *Reds* are, Vermillion, Cinnaber Lake, Red-lead, Indian Red, Ornotto.

IV. The chief *Greens* are, Verdigrise, Terra-vert, Verditer.

V. The chief *Yellows* are, Pink, Masticot, English Oker, Spruce Oker, Orpiment.

VI. The chief *Blews* are, Blew Bice, Indico, Ultramarine, Smalt.

VII. The chief *Browns* are Spanish-brown, burnt Spruce Umber.

VIII. These Colors, Lamp-black, Verditer, Vermilion, Bice, Smalt, Masticot, Orpiment, Ultramarine, are not to be ground at all, but only tempered with oyl upon the Paller.

IX. These Colors, Ivory, Ceruse, Oker and Umber are to be burnt, and then ground with oyl.

X. All the rest are to be ground upon the Grinding stone with Linseed oyl (except White-lead,) when it is to be used for Linnen, which then is to be ground with oyl of Walnuts, for Linseed oyl will make it turn yellow.

And now since we are engaged to treat of colors, it may neither be unnecessary, nor unuseful for the young Artist to know their natural significations; which take as followeth.

XI. *Blew* signifieth truth, faith, and continued affections; *Azure* Constancy; *Violet*, a religious mind.

XII. *Orange tawny* signifies Pride, also integrity; *Tawny*, forsaken; *Limmon*, jealousy.

XIII. *Green* signifies hopes: *Grass-green*, youth, youthfulness, and rejoycing: *Sea-green*, Inconstancy.

XIV. *Red* signifies Justice, Verue and Defence: *Flame-color*, Beauty and Desire: *Maidens-blush*, Envy.

XV. *Yellow* signifies Jealousie: perfect yellow, Joy, Honour, and greatness of Spirit: *Gold-color*, Avarice,

XVI. *Flesh-color* signifieth Lasciviousness; *Carnation*, Craft, Subility and Deceit: *Purple*, Fortitude and Strength.

XVII. *Willow Color* signifieth forsaken: *Poppingjay-green*, Wantonness: *Peach-color*, Love.

XVIII. *White* signifieth Death: *Milk-white*, Innocency, Purity, Truth, Integrity: *Black*, Wisdom, Sobriety, and Mourning.

XIX. *Straw-color* signifieth Plenty: *Rust of Iron*, Witheredness; *Ermine* Religion and holiness.

XX. The *White*, *Black*, *Red*, and *Green*, are colors held sacred in the Church of Rome: *White* is worn in the Festivals of Virgins, Saints, Confessors and Angels, to show their Innocency: *Red* in the Solemnities of the Apostles and Martyrs of Jesus: *Black* in Lent and other Fasting days: *Green* is worn between the Epiphany and Septuagesima: and between Pentecost and Advent.

CHAP. IV.

Of the fitting of Colors for Painting

I. **U**Pon the Pallet dispose the several colors, at a convenient distance, that they may not intermix: first lay on the Vermilion, then the Lake, then the burnt Oker, then the Indian Red, Pink, Umber, Black and Smalt, each in their order, and lay the White next to your thumb, because it is oft-est used, for with it all the shadows are to be lightned; and next the White a stiff sort of Lake; thus is the Pallet furnished with single colors for a face.

Now to temper them for shadowing various complexions do thus.

II. For a fair complexion.

Take *White* one dram, *Vermilion*, *Lake*, of each two drams, temper them, and lay them aside for the deepest Carnation of the face: to part of the aforesaid mixture put a little more white, for a light Carnation; and to part of that put more white (which temper on the Pallet) for the lightest color of the face.

III. The faint shadows for the fair Complexion.

Take Smalt, and a little white, for the eyes; to part of that add a little Pink, and temper by it self for faint greenish shadows in the face.

IV. The deep shadows for the same.

Take Cinnaber Lake, Pink, and black of each, a sufficient quantity, which temper together; if the shadows ought to be redder than what is tempered, add more Lake; if yellower, add more Pink; if blower or grayer, add more black: thus shall the Pallet be fitted with colors.

V. For a brown or swarthy complexion.

The single colors being laid on the Pallet as before, and tempered: to the white, Lake and Vermilion, put a little burnt Oker for a Tawny; and for heightning add some Yellow Oker, so much as may just change the colors. The faint and deep shadows are the same as at the third and fourth Section of this Chapter.

VI. For a Tawny complexion.

The colors are the same with the former, but the shadows are different; which must be made of burnt Oker and Umber, (which will fit well:) if the shadows be not yellow enough, add a little Pink to it.

VII. For a black complexion.

The dark shadows are the same with the former: but for heightning take White, Black, Lake, and burnt Oker; in tempering of which put in the white by degrees, till you come to the lightest of all. Where note that the single colors at first laid upon the Pallet and tempered, serve for shadows for all complexions; and that all deepnings ought to be with black, Lake and Pink tempered together.

C H A P. V.

Of Colors for Velvet.

I. **FOR** black Velvet. Take Lamp-black and Verdigrise for the first ground; that being dry, take Ivory-black, and Verdigrise shadow it with White-lead mixt with Lamp-black.

II. **For Green.** Take Lamp-black and White-lead, and work it like a Russet Velvet, and let it dry; then draw it over with Verdigrise tempered with a little Pink.

III. *For Sea-green.* Take only Verdigrise, and lay it over Russet: If a *Grass-green*, put a little Masticot to it; shadow these greens with Russet, which lay according to the deepness of the green.

IV. *For Red.* Take Vermilion, and shadow it with Spanish-brown; and where you would have it darkest, shadow with Seacoal-black and Spanish brown with the aforesaid colors, dry it, and then gloss it over with Lake.

V. *For Crimson or Carnation.* Take Vermilion, to which add White-lead at pleasure.

VI. *For Blew.* Take Smalt tempered alone.

VII. *For Yellow.* Take Masticot and yellow Oker, and where you would have it darkest, shadow it with Umber.

VIII. *For Tawny.* Take Spanish-brown, White-lead, and Lamp-black, with a little Verdigrise, to shadow where need is; when dry, gloss it over with Lake and a little Red-lead.

IX. *For hair color.* Take Umber ground alone; and where it should be brightest, mix some White-lead about the folds, lighten or darken with White-lead and Umber.

X. *For Ash-color.* Take Charcoal, black and White-lead; lighten with White-lead: a color like to a dark Russet will be an Ash-color.

XI. *For Purple.* Take Smalt and Lake, of each alike, temper them (light or deep as you please) with white-lead.

XII. *Lastly note.* that in painting Velvet you must at first work it somewhat sad, and then give it a sudden brightness.

CHAP. VI.

Of Colors for Sattins.

FOR Black, Take Lamp-black ground with Oyl, and tempered with white-lead; and where you would have it shine most, mix Lake with the white-lead.

II. *For Green.* Take Verdigrise ground alone and mixed with white-lead; adding Pink where you would have it brightest: to the deepest shadows add more Verdigrise.

III. *For Yellow.* Take Masticot, yellow Oker and Umber (ground each by themselves) where it should be brightest use Masticot

Masticot alone; where a light shadow, use Oker, where darkest use Umber.

IV. *For Purple.* Take Smalt alone, and where it should be brightest use white-lead.

V. *For Red.* Take Spanish-brown (ground alone) mix it with Vermilion, and where it should be brightest mix white-lead with the Vermilion.

VI. *For White.* Take White-lead (ground alone) and Ivory-black, which temper light or dark.

VII. *For Bleu.* Temper Smalt and White-lead: where it should be saddest, use Smalt; where lightest, White-lead.

VIII. *For Orange Color.* Take Red-lead and Lakes; where brightest, Red-lead, where saddest, Lake.

IX. *For Hair Color.* Temper Umber and White-lead; where it should be brightest, put more White-lead, and where the greatest shadow, use Seacoal-black mixed with Umber.

CHAP. VII.

Of Colors for Taffaty, Cloath and Leather.

I. **T***Affaties* are Painted much as Satin, thus: Take such colors as are fit for the purpose, and lay them one by another upon the work, and shadow them with others.

II. *Cloth* is the same work with Satin, save, you must not give to Cloth so sudden a shining gloss.

III. *Cloth of Gold* is made of brown Oker and liquid Gold; water and beighten upon the same with small gold stroaks.

IV. *For Buff,* mix yellow Oker and White-lead; and where it should be dark by degrees, mix it with a little Umber; when you have done, size it over with Umber and Seacoal-black.

V. *For Yellow Leather,* take Masticot and yellow Oker, shadow it with Umber.

VI. *For black Leather,* take Lamp-black, and shadow it with White-lead.

VII. *For white Leather,* take White-lead, and shadow it with Ivory-black.

CHAP. VIII.

Of Colors for Garments in general.

I. **FOR Black**, Let the dead color be Lamp-black and Verdigrise : being dry, go over with Ivory-black and Verdigrise ; but before the second going over, heighten it with white.

II. *For Hair Color*. Take Umber and White for the grounds ; Umber and black for the deeper shadows ; Umber and English Oker for the meaner shadows ; white and English Oker for the heightning.

III. *For blew*. Take Indico and White : first lay the White, then the Indico and White mixed ; then deepen it with Indico, and when dry, glaze it with Ultramarine which will never fade.

Smalt will turn black, and Bice will turn green.

IV. *For Purple*. Take Smalt tempered with Lake and White-lead ; then heighten with White-lead.

V. *For a sad Red*. Take Indian Red heightned with White.

VI. *For a light Red*. Take Vermilion, glaze it over with Lake, and heighten it with White.

VII. *For a Scarlet*, Take Vermilion and deepen it with Lake, or Indian-Red.

VIII. *For Green*. Take Bice and Pink, heighten it with Masticot, and deepen with Indico and Pink.

IX. *For yellow*. Take Masticot, yellow Oker, Umber ; lay Masticot and white in the lightest places ; Oker and White in the mean places, and Umber in the darkest, glaze it with Pink.

X. *For Orange Color*. Lay the lightest parts with Red-lead and white, the mean parts with Red-lead alone ; the deeper parts with Lake, and if need is, heighten it with white.

XI. *For a sad Green*. Mix Indico with Pink : *For a light Green* mix Pink and Masticot ; *for a Grass-green* mix Verdigrise and Pink.

XII. Remember always to lay yellows, blews, reds and greens, upon a white ground, for that only giveth them life.

C H A P. IX.

Colors for Metals and precious Stones.

I. **FOR Iron.** Take Lamp-black and White-lead ; if you would have it rusty, take Seacoal-black, and mix it with a little white.

II. **For Silver.** Take Charcoal-black and White-lead ; where you would have it darkeſt, uſe more Charcoal ; work, Silver ſomewhat ruſtiſh, and give it a ſudden gloſs with White-lead only.

III. **For Gold.** Take Lake, Umber, Red-lead, Maſticot ; lay the ground with Red-lead, and a little dry Pink : where you would have it darkeſt, ſhadow it moſt with Umber, where lighteſt with Maſticot.

Note, in grinding Red-lead for the Gold ſize, put in a little Verdigrife to make it dry ſooner.

IV. **For Pearls.** Temper Charcoal-black with white-lead, till it be a perfect ruſſet ; then make the Pearl with it, and give it a ſpeck of White-lead only to make it ſhine.

Where note, that Ceruſe tempered with Oyl of white Poppy is excellent to heighten up Pearls.

V. **For precious Stones.** For Rubies, &c. lay their counter-ſeit grounds with transparent colors ; and Lake, Verdigrife and Verditer give them a ſhining color.

C H A P. X.

Of Colors for Landskip.

I. **F**OR a light Green, use Pink and Masticot heightned with white: for a sad Green, Indico and Pink heightned with Masticot.

II. For some Trees, take Lake, Umber and White, for others Charcoal and white, for others Umber, black and white, with some green; and sometimes Lake or Vermilion, with other colors.

III. For Wood, take Lake, Umber and white, mixing sometimes a little green withal.

IV. For Fire, lay Red-lead and Vermilion tempered together where it is reddest: where it is blew, lay oyl, Smalt, and white-lead: where it is yellow, take Masticot, and work it over in certain places; where you would have it shine most with Vermilion.

V. For an Azure Skie, which seems a far off, take Oyl, Smalt, or Bice, and temper them with Linseed-oyl. But grind them not: for Smalt or Bice utterly lose their color in grinding.

VI. For a Red Skie, take Lake and white; and for Sunbeams, or yellow clouds at Sun-rising or setting, take Masticot and white.

VII. For a Night Skie, or clouds in a storm, take Indico deepned with black, and heightned with white.

VIII. For Wood Colors, they are compounded either of Umber and white, Charcoal and white, Seacoal and white, Umber black and white; or with some green added: to which you may adjoin sometimes, as in barks of Trees, a little Lake or Vermillion.

IX. Lastly for the practical performing of the work have recourse to the rules delivered in chap. 17. lib. I. and chap. 27. lib. II.

CHAP.

CHAP. XI.

Of the Painting of the Face.

I. **H**AVE your necessary pencils in readiness, as two pencils ducks quill fitted; and two ducks quill pointed; two Goose quill fitted, and two pointed: two brittles both alike; one Swans quill fitted, and one pointed; one larger pencil in a Tin case fitted; and a brittle of the same Bigness, every one having a stick of about nine inches long put into the quill thereof, the farther end of which stick must be cut to a point.

II. Have the pencils in a readiness in your left hand, with the *pallet* upon your thumb, prepared with fit colors, and your *mollstick* to rest upon; you must work according to the directions following.

III. The *cloth* being primed, and strained upon the *Frame*, take a knife, and with the edge thereof scrape over the cloth, lest knots or the like should trouble it.

IV. Then set the *Frame* and *Cloth* upon the *Easel*, at a convenient height, that sitting on a stool (even with the party you draw) you may have the face of the Picture equal, or something higher than your own: set the *Easel* to the light (as in Limning we have taught) letting it come in upon your left hand, casting the light towards the right.

V. Let the Person to be drawn, sit before you in the posture he intends to be painted in, about two yards distant from you.

VI. Then with a piece of painted chalk draw the proportion of the face upon the cloth, with the place of the eyes, nose, mouth, ears, hair, and other postures.

Here is no difficulty in this, if you miss much, the colors will bring all to right again.

VII. Then take a pencil, Swans quill pointed, and begin to paint some of the lightest parts of the face with the lightest color, (as the heightning of the forehead, nose, cheek-bone of the lightest side :) the mean parts next (as the cheek-bone of the dark-side, chin, and over the upper lip: proceed-

proceeding, gradually till you come to the reddest parts of all.

VIII. Lay faint greenish shadows in convenient places, and where it is necessary to soften harsher shadows, but take heed of putting green where red should be.

IX. The faint or light parts thus done, take one of the Goose quill pointed, or Ducks quill fitch, and begin at the eyes to shadow with Lake, going over the nose, mouth, compass of the ear, &c. before you lay on any color, wiping it lightly over with a linnen rag to prevent the overcoming of the other colors.

X. The colors both light and dark being put in, take a great fitch pencil; and sweeten the colors therewith, by going over the shadows with a clean soft pencil, which being well handled, will drive and intermix the colors one into another, that they will look as if they were all laid on at once, and not at divers times.

Where note, that the bigger pencils you use, the sweeter and better your work will lie.

XI. *At the second sitting*, begin again with clean pencils, of such bigness as the work requires, and observe well the person, and see what defects you find in your work at first sitting, and amend them: then heighten or deepen the shadows as occasion requires.

XII. *Lastly*, take a Goose quill bristle, and put in the hair about the face (if there must be any) and rub in the greater hair, with the greater bristle, heightning it up with the Goose quill pencil.

CHAP. XII.

Of the cleansing of any old Painting.

I. **T**AKE good wood-ashes, and searce them, or else some Small or powder-blew, and with a Sponge and fair water gently wash the Picture you would cleanse (taking great care of the shadows) which done, dry it very well with a clean cloth.

II. Then varnish it over again with some good varnish, but such as may be washed off again with water if need be.

We shall hereafter shew the way of making varnishes of several sorts, mean season this following may serve.

III. Take either common varnish (made with Gum sandrack dissolved in Linseed-oil by boiling) or glair of Eggs, and with your pencil go over the Picture once, twice, or more therewith as need requires.

IV. If your painting be Wainscoting, or any other Joinery or Carpentry Work, you may take the Woodashes (at Sect. 1.) and mixing them somewhat thick with Water, rub them over the Painting, with a stiff Bristle Brush, as a Shoo Brush, and so scour, wash and dry it, as aforesaid, and then varnish it with common Varnish.

V. But if the Painting be more curious, as Figures of Men, Beasts, Landscips, Flowers, Fruits, &c. then take Smalt only, and with a Sponge wet in Water, cleanse it as aforesaid gently, which wash after with fair Water, then dry and varnish it, so will the lustre and glory of your Painting be much recovered.

VI. This cleansing of Paintings, ought not to be practised but seldom (*viz.* when it is very much soyled) because often and too frequent cleansings in this kind, will by degrees wear off part of the Colours: And therefore endeavour to preserve their first Beauty, by keeping them from smook, dust, flies, &c.

VII. All Pictures (chiefly those performed with mixtures of white Lead) are apt to grow tawny, to tarnish or grow rusty, as may be seen in all old pieces: To prevent this, expose them to the hot Sun three or four days in May or June: so will the ill Colour be much drawn off, and the painting appear more fresh and beautiful: this doing yearly, you will wonderfully preserve them.

C H A P. XIII.

Of a Picture in general.

I. **I**N every Picture there are always four principal considerations: to wit, 1. *Invention*. 2. *Proportion*. 3. *Color*: and 4. *Life*.

II. *Invention* must be free, and flow from a general knowledge of Antiquities, History, Poetical Fictions, Geometrical conclusions, and Optical considerations, according to its Situation or Aspect, either near or far off.

III. And this *Invention* must express proper and fit things, agreeing to the Circumstances of *Time*, *Place*, *Matter*, and *Person*; and having respect to the modes of habits belonging to the Country or People whether *Antient* or *Modern*.

IV. *Proportion*, *Analogy*, or *Symmetry* (which you please) is that which limits each part to its proper bigness, in respect to the whole.

Whatsoever differs from this recedes from beauty, and may be called Deformity.

V. This *Proportion* is called by Artists the designing lines; which are first drawn before the whole is painted.

VI. These proportions or lineal designs, draughts, and sketches, may be called *Picture*, which being well done, shew not only the shape, but also the intent.

VII. In lines only we may draw the proportion of a *Black-Moor*, and such as shall be like him: Now this skill proceeds from the very highest principles of *Art*.

VIII. *Color* is that which makes the Picture resemble what we desire to imitate; by mixing of various colors together.

IX. In making any thing apparent it is necessary to express its opposite or contrary.

X. So light and shadows forward, set forth Paintings outwards, as if you might take hold of them with your hand: blackness makes things seem farther off, and is used in things below, as Caves, Wells, &c. the more deep the more black.

XI. Brightness exceeds and is as light sparkling in splendor.

It is used in the Glory of Angels ; twinkling of Gems, Armour, Gold and Silver vessels, fires and flames.

XII. In Painting of a man, grace each limb with its proper and lively color ; the black make sincerely black ; the white pure, with redness intermixt.

XIII. But to paint purely the exquisite beauty of a woman, is never to be well done (except it be by a very ingenious Artist indeed) her rare complexion being scarcely possible to be imitated with colors : *There is none really knows the exact mixture for such a Countenance.*

XIV. Life or Motion is that from whence action or passion doth result, which in colored Pictures is seen with a lively force of Gesture and Spirit.

XV. *To do this it is necessary that the Artist be well acquainted with the nature, manners, and behaviour of men and women, as in anger, sadness, joy, earnestness, idleness, love, envy, fear, hope, despair, &c. Every disturbance of the mind alters the Countenance into several postures.*

XVI. The head cast down shews humility ; cast back, arrogance or scorn ; hanging on the neck, languishing ; stiff and sturdy, morosity of mind.

XVII. The various postures of the head shew the passions ; the Countenance the same ; the eyes the like ; and in a word, all the other parts of the body contribute something to the expression of the said passions of the mind, as is easily to be observed in the life.

In excellent pieces you may at a view read the mind of the Artist in the formality of the Story.

XVIII. Lastly, Be always sure first to conceive that in your thoughts, which you would express in your work ; that your endeavours being assisted by an intellectual energy, or power of operation, may at length render your productions perfect.

CHAP. XIV.

Of the Choice of Copies, or Pattern.

I. **H**E that chuseth a Pattern, ought to see 1. that it be well designed : 2. that it be well covered.

II. In the well designing, be sure that it be true in every part ; and that the proportion of the figure be just and correspond to the life.

III. If the Picture be a fiction, see that it be done boldly, not only to exceed the work (but also the possibility) of nature, as in *Centaures, Satyrs, Syrens, Flying-horses, Sea-horses, Tritons, Nereides, &c.*

Alexander ab Alexandrio saith, that Theodore Gaza caught one of these Nereides in Greece, and that in Zealand, another was taught to spin: these Tritons and Nereides are these which are called Mare-maids, the Male and the Female.

IV. Natural figures shew property, and are required to agree with the life: forced figures express novelty, and are to be beautified by exorbitancies according to the fancy of the Painter without limitation: novelty causes admiration, and admiration curiosity, a kind of delight and satisfaction to the mind.

These things are not the products of stupid brains, nor are they contained within the perimetre of clouded and dull Conceptions.

V. In the well coloring, know that in obscurity or darkness there is a kind of deepness; the light being sweetly deceived *gradatim* in breaking the Colors, by insensible change from the more high to the more dull.

In the Rain-bow this mixture is perfect; the variety of Colors are thoroughly dispers'd (like Atoms in the Sunbeams) among one another, to create its just appearance.

VI. See that the swellings of the work agree to the exactness of nature, and as the parts thereof require, without sharpness in out-lines, or flatness within the body of the piece; as also that each hollowness exactly correspond in due proportions.

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VII. Lastly, View precisely the passions, as *Joy, Sorrow, Love, Hatred, Fear, Hope, &c.* and see that they correspond with their proper postures; for a touch of the pencil may strangely alter a passion to its just opposite or contrary, as from Mirth to Mourning, &c.

CHAP. XV.

Of the Disposing of Pictures and Paintings.

I. **A** *Neique* works, or *Grotesco*, may become a wall, the borders and freezes of other works; but if there be any draughts in figures of men and women to the life upon the wall, they will be best of black and white, or of one color heightened: if they be naked, let them be as large as the place will afford: if of Marbles, Columns, Aquæducts, Arches, Ruines, Cataracts, let them be bold, high, and of large proportion.

II. Let the best pieces be placed to be seen with single lights, for so the shadows fall natural, being always fitted to answer one light; and the more under or below the light the better, especially in mens faces, and large pieces.

III. Let the *Porch* or entrance into the house, be set out with *Rustick* figures, and thing rural.

IV. Let the *Hall* be adorned with *Shepherds, Peasants, Milk-maids, Neat-herds, Flocks of Sheep* and the like, in their respective places and proper attendants; as also *Fowls, Fish,* and the like.

V. Let the *Stair-case* be set off with some admirable monument or building, either new or ruinous, to be seen and observed at a view passing up: and let the *Ceiling* over the top-stair be put with figures foreshorned looking downwards out of Clouds, with *Garlands and Cornucopia's*.

VI. Let *Landskips, Hunting, Fishing, Fowling, Histories* and *Antiquities* be put in the *Great Chamber*.

VII. In the *Dining-room* let be placed the *Pictures* of the *King and Queen*; or their *Coat of Arms*; forbearing to put any other *Pictures* of the life; as not being worthy to be their companions; unless at the lower end, two or three of the chief

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Nobility, as attendants of their Royal Persons : for want hereof you may put in place, some few of the nearest blood.

VIII. In the *inward or with-drawing Chambers*, put other draughts of the life, of Persons of Honor; intimate or special friends, and acquaintance, or of Artists only.

IX. In *Banqueting-rooms*, put cheerful and merry Paintings, as of *Bacchus, Centaures, Satyrs, Syrens*, and the like, but forbearing all obscene Pictures.

X. Histories, grave Stories, and the best works become *Galleries* ; where any one may walk, and exercise their senses, in viewing, examining, delighting, judging and censuring.

XI. In *Summer-houses and Stone-walks*, put Castles, Churches or some fair building : In *Terraces*, put Boscage, and wild works. Upon *Chimney-pieces*, put only Landskips, for they chiefly adorn.

XII. And in the *Bed-Chamber*, put your own, your Wives and Childrens Pictures ; as only becoming the most private Room, and your Modesty : lest (if your Wife be a beauty) some wanton and libidinous guest should gaze too long on them, and commend the work for her sake.

XIII. In hanging of your pictures ; if they hang high above reach, let them bend somewhat forward at the top ; because otherwise it is observed that the visual beams of the Eye, extending to the top of the Picture, appear further off, than those at the foot.

CH A P. XVI.

Of Frescoe, or Painting of Walls.

I. **I**N Painting upon Walls, to make it endure the weather, you must grind your colors with Lime water, Milk, or Whey, mixt in size color in pots.

II. The paste or plaister must be made of well wash'd Lime, mixt with fine powder of old rubbish stones : the Lime must be so often wash'd, till all its Salt is abstracted ; and all your work must be done in clear and dry weather.

III. To make the work endure, strike into the wall stumps of headed nails, about five or six inches asunder, and by

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by this means you may preserve the plaister from peeling.

IV. Then with this paitte, plaister the wall, a pretty thickness, letting it dry : being dry, plaister it over again about the thickness of half a Barley corn, very fine and smooth, then your colors being ready prepared work this last plaistering over, whilest it is wet, so will your Painting unite and joyn fast to the plaister, and dry together as a perfect compost.

V. In painting be nimble and free, let your work be bold and strong, but be sure to be exact, for there can be no Alteration after the first Painting, and therefore heighten your Paint enough at first, you may deepen at pleasure.

VI. All Earthy Colors are best, as the Oker, Spanish White, Spanish brown, Terravert, and the like : mineral Colors are naught.

VII. Let your pencils and brushes be long and soft, otherwise your work will not be smooth.

VIII. Let your Colors be full, and flow freely from the Pencil or Brush, and let your design be perfect at first, for in this, there is no after alteration to be made.

C H A P. XVII.

Of Painting Sun Dials, Timber-work, &c.

I. **I**F the Dial be not drawn upon the Wall it self ; you must have a Dial Plain, which you may make of the firmest and clearest Oak, and thoroughly dry, so as that it may be free from shrinking.

II. Cut your Board to such a length, as you intend the length of the Dial to be of, and so many of them, as may make up the designed breadth ; joyn and plain them on both sides, then set them to dry (for though they have lain in a House never so long, and are never so dry, yet being thus shot and plained, they will shrink afterwards beyond belief.)

III. When they are dry enough, and will shrink no more, shote them again with good Joyns, which fasten together in the glewing with Pins or Pegs, as Coopers do the bottoms of their Tubs.

IV. Being thus glewed and dryed, let it be well plained, and tryed every way, that it may be both smooth and true: let the edges be shot true, and all of a thickness, that they may fit into the Rabets of the Moulding, put round it, just as a Pannel of Wainscot doth in its Frame.

V. This will give the Board liberty to shrink and swell without rending, whereas mouldings, nailed round the edges, as the vulgar way is, doth so restrain the motion of the Wood, that it cannot shrink without tearing; but made this way, they will last a long time, without either parting in the Joynts, or splitting in the Wood.

VI. The colors chiefly made use of in painting Dials are 1. Ceruse, 2. white-lead; 3. Lamp-Black, 4. Char cole or Sea-cole, 5. Spanish-brown, 6. Red-lead, 7. Vermillion, 8. Cinnaber Lake, 9. Smalt, 10. Blew Bice, 11. Blew Verditer, 12. Indico, 13. Umber, 14. Verdigrise, 15. yellow Oak-er, 16. yellow Pimp.

VII. But for a Plain Sun-dial, these four Colors will serve, viz. 1. *Spanish-brown*, for the priming Color, 2. *Vermillion*, for drawing the Lines, 3. *Lamp-black*, for drawing the Figures, 4. *white Lead*, for the last Color to be laid upon the Plain.

VIII. But if you will have your Dial more rich, you must have, 1. *Leaf-Gold* for gilding, 2. *Gold Size*, to make the Figures to lay Gold on, 3. *Smalt or Blew Bice* for the Margin and inner Table.

IX. And for curiosity sake, you may use such other Colors, as your fancy shall direct you to be most suitable to the design.

X. To these things add *Linseed Oyl*, to temper your Colors with: and *Oyl of Turpentine*, to mix a little of it with your Colors, to make them dry the more speedily.

XI. *Ceruse* and *white Lead*, are easie to be ground fine: and the only white Colors used in Painting in Oyl: these are the last Colors to be laid on the plains of Dials.

XII. And with them Posts, Pails, Palisadoes, Gates, Doors, Windows, Wainscoting, &c. are often colored both for beauty and preservation, they resisting the Weather well.

XIII. They dry well but to make them dry more speedily, some in tempering put *Oyl of Turpentine* to them; but then without doors they resist not the Weather so well.

XIV. *Lamp Black*, is a fair Color, and may be tempered with Linseed Oyl : But it must be first burnt, then ground, afterwards tempered with the Oyl.

XV. A little of this with much *White*, makes an *ashcolor* ; and according to the proportion of either, it gives several delightful varieties.

XVI. *Charcole*, is a good Black for ordinary uses, but it must have good labor in grinding to make it fine ; it dries well.

XVII. *Spanish Brown*, the best is of a deep bright color and free from Stones ; it grinds well with pains, and is the only color used in *priming* all manner of Timber-work.

XVIII. 1. Because it is cheap : 2. Because it dries kindly, yet gives the Oyl sufficient time to pierce into the Wood. 3. Because it freely receives all other Colors which are laid upon it.

XIX. This of it self is a perfect horse-Flesh color, and a natural shadow for Vermilion : being mixt with white, it gives sundry varieties, according to the various proportions.

XX. *Red-Lead*, it is not to be ground very fine on a Stone, but you may make it fine by wathing : it is a great dryer and binder, for which cause it is mixed with some other Colors, to make them dry speedily : and it notably resists the weather, as well as any Color whatsoever.

XXI. *Vermillion*, It is a rich Color, and of a good body, if it be fine ground, otherwise it is as bad a Color as any : but being ground as soft as Oyl, no Color works better. You had best to buy it in the Stone, lest it be sophisticated with red Lead.

XXII. It is a perfect Scarlet, and mix with white, it gives a *Carnation*, in divers varieties, according to the proportions. Its shadow is Spanish Brown. With this we commonly draw the Hour Lines on Sundials.

XXIII. *Cinnabar Lake*, it is a rich Crimson color, and is to be ground very fine. Mixt with *Bice* it make a *purple* of divers varieties, according to the proportions.

XXIV. Mixt with *White*, it makes a Crimson *Carnation* in divers Varieties, which *White* and *Red-Lead*, a flesh color.

XXV. It is used in Ornaments of Dials, and in several Flowets. A Margin of a Dial with Gold Figures, is beautiful.

XXVI. *Smalt*, it is a delicate Blew at a distance, if strewed on: if you will work it in Oyl, it must be made fine with washing, and mixt with white-Lead, but even then it works not well, but in time will be apt to turn Black.

XXVII. The best way therefore is to strew it on, and then there is scarcely a more glorious Blew: it is a good color for the Margin of a Dial, if it be figured with Gold, as also for other purposes. If you buy it to work in Oyl, the finest is best, which they call *Oyl Smalt*.

XXVIII. *Blew Bice*, it is a pale color, and fine enough for almost any use, and works well, though a little sandy. It is used for a Margin ground in Dials, to gild Figures in small Plains, that are near the Eye.

XXIX. Mixt with *Pink*, it makes a *Green*: with *Lake* a *Purple*: with *white* a light *Blew*; and in each several varieties according to the proportions.

XXX. *Blew Verditer*, It is sandy, apt to change and turn greenish. It may serve in Dial Painting where *Bice* and *Smalt* are wanting, but not so good as either of them. Mixed with yellows, it makes a good green: with Whites or Yellows, or both, many other varieties.

XXXI. *Indico*, It is a very dark Blew, and seldom used without a mixture of White, unless to shadow with. It grinds fine, works well, and is much used in common Painting for the last colors of Posts, Pales, Rails, Pallisadoes, Doors, Windows, or any other Timber work, for that it resists the weather well.

XXXII. It is dear, and therefore many Painters use *Blew-Balls*, which are almost like it, but not so good a color either for beauty or lasting, mixt with White, it makes a *Lead-Color*: and it is excellent to marble *White* withal or to shadow it.

XXXIII. *Umber*. It is a perfect hair color, it may be ground very fine with much labor, and dries and binds exceedingly, and therefore very well resists weather.

XXXIV. It is much used in Painting for the many varieties it gives. Calcin'd in a Crucible, it is the natural shadow for Gold, and some other colors.

XXXV. *Verdigrise*; It is a perfect Willow Green, and therefore for some uses must be corrected with yellows. 'Tis very foul, and therefore ought to be cleansed thus.

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XXXVI. Grind it fine, and put to it eight times its weight of spirit of Vinegar; digest till the Vinegar is tinged very Green: then decant the color, cast away the Fæces, and evaporate the Vinegar in a brass Vesica, so have you a glorious Verdigrise at the bottom, of which one ounce is worth ten of the former.

XXXVII. It dries speedily: mixt with Pink yellow, it makes a pure lively grass Green: with White, many varieties of light Greens, &c.

XXXVIII. Yellow Oker. It is either English or Foreign. The one is of a Wheat straw Color, the other somewhat deeper, with much labour it may be ground very fine. It is much used in vulgar Painting, and to make Gold size withal.

XXXIX. Yellow Pink. It is a yellow inclining to Green, and grinds well. It is a good color for some uses, but chiefly to mix with other colors, to make Green withal.

XL. The foregoing Colors are now to be either *Burnt*, *Ground*, or *Washed*, as they severally require, and as we have taught in Chap. 22. foregoing of this Book: this done you are to grind them with Oyl, thus.

XLI. Take about two spoonfuls of the color you intend to Grind, and put to it a little Linseed Oyl, (but see you put not too much) mix them together, and grind them well upon your stone with a Muller: add Oyl by degrees, till it comes to the thickness of an Oyntment, for so it grinds much better than when it is so thin as to run about the stone.

XLII. Oftentimes as you grind, bring the matter together with a piece of *Lanthorn* horn, and as much as may be keep it together in the middle of the stone, till it is ground fine enough, then take it off, and put more color upon the stone, grinding as before, which work continue till you have Color enough to serve your occasion.

XLIII. This done, if you grind other colors after it, cleanse the stone first by grinding Sand and Water upon it, then washing it, and drying it.

XLIV. The Colors thus ground will be too thick for use, without adding more Oyl: therefore when you use them (whether simple or compounded, as your occasion requires) you must add more Oyl to them, till they be so thin as to run free with the Pencil.

XLV. Yet not to let the ground on which they are laid, to be seen through them, or to run about when it is laid on; for so, you must be forced to go over it the oftner, before your work will be substantial.

XLVI. Whereas, if your Color be as stiff as it can well be wrought, your work will be done with more speed; and once doing will be more substantial, than three times with the thin Color.

XLVII. This is the cheat of common Painters who do work by the yard, at a certain price; they do it with such thin Color that all their three times doing over, is not so substantial as one time would be, if the Color had been of a thick and strong body.

XLVIII. And three times coloring with such a thick and well bodied Color will last ten times as long, as that which is wrought thus slightly by common Painters.

XLIX. Observe also, that if the Color to be mixt, be your priming Color, viz. *the first color you lay on*, it ought to be made so much the thinner, that it may have Oyl enough to pierce into the Wood, which is much for its durability; but after your first Color is laid on, let your next be thicker, as before is taught.

L. But if your Color to be mixt be for the drawing of Hour-lines, or making the Figures in a Sun-dial, then let it be tempered as stiff as is possible to use it, that it may not presently decay, but may be capable by the quantity laid on, to last as long any color on the Dial.

LI. To which purpose, its being wrought in *Fat Oyl* will much conduce: how this fat or thick Oyl is made, we now come to teach.

LII. *How to make the said fat or thick Oyl.* Take Linseed Oyl what you please, put to it a sufficient quantity of Red-Lead (the more, the better) so as it hinders not the boyling. This Red-Lead, adds a drying quality to the Oyl: Let them boyl gently, over a Charcole fire without flame, till it is boyled enough, which you may know by taking a little of it out and cooling of it; if it roaps like thin Treacle, or a Syrup, it is enough.

LIII. Then with a lighted paper set it on fire that it may take away much of its greasiness, let it burn a minute or two, more or less as your Oyl is in quantity: then extinguish it, by covering it close over with a Cloth, and letting it cool and settle, decant the clear Oyl, and keep it in a bladder for use.

LIV. *To make the Gold size.* Take Yellow Oker, grind it on a stone with water, till it be very fine, and lay it on a chalk Stone to dry.

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LV. *Or thus.* First grind it fine as aforesaid, then wash it (by Sect. 6. Chap. 22. of this Book) and thereby separate the pure fine part of the Color, which dry as the former.

LVI. Take of this prepared *Oker*, what you please, add to it a little of the former prepared *Oyl*, and grind them together as you do other *oyl* Colors: this work will be laborious, for it must be ground very fine, even as the *Oyl* it self; and the finer it is, the greater luster will your Gold carry that is laid on it.

LVII. Where note, that you put so much of the prepared *Oyl* to the *Oker*, that it may be of a good stiffness to work well, and of such a fit body, that after it is laid on, it may settle it self smooth and glossy, but not so weak as to run. See Chap. 21. Sect. 5.

LVIII. *How Colors are to be set off.* 1. *Blews* set off best with *Yellow* and *Whites*: indifferently with *Blacks* and *Reds*; not at all with *Greens*, *Purples*, or *Browns*.

LIX. 2. *Greens* set off best with *Whites* and *Yellows*: not at all with *Blacks*, *Blews*, or *Reds*.

LX. 3. *Reds* set off best with *Whites* and *Yellows*, indifferently with *Blews* and *Blacks*.

LXI. 4. *Yellows* set off best with *Blacks*, *Blews*, and *Reds*, indifferently with *Greens*, *Purples*, and *Whites*.

LXII. 5. *Whites* and *Blacks* set off well with any Color, because they so much differ from all others.

LXIII. *The manner of Painting Sun-dials.* Having the draught of your Dial on paper, your Plain or Board fitted, and your Colors prepared, proceed thus.

LXIV. Take *Spanish Brown* well ground, mixed, and somewhat thin, and with a large Bristle Brush, color therewith your Plain all over, on every side, so that no part be left undone.

LXV. This is called the Priming of your Dial. When it is dry, do it over again with more of the same Color, tempered somewhat thicker, which when dry also.

LXVI. You may do it over again a third time, with the same color, so will your work be the stronger, and last longer.

LXVII. When this last time of coloring your Plain is dry; then go over it with *White-Lead Color*; which when dry, go over it again three or four times successively after each drying:

ing: so will the face of your Plain be defended against the fury and violence of the weather for many years.

LXVIII. To transferr the Draught of your Dial upon the Plain. The last Coloring being dry, draw on the Plain (with a black Lead Pencil) a Horizontal Line, so far from the uppermost edge of your Dial, as your Reason shall think fit, or best convenes with the Plain.

LXIX. Then set out the margin of the Dial, with sundry Lines for hours, half hours and quarters: after, take the Draught, and place it on the Horizontal Line, observing to place the Center, according as the Situation of your Plain requires.

LXX. If the Dial be a direct South Dial, let the Center be exactly in the middle of your Plain; if your Dial declines Eastwards or Westwards, place the Center of the Draught, between the Center of the Plain, and the Eastern or Western side thereof.

LXXI. If it declines but little, place the Center of the Draught, but a little from the Center of the Plain; if it declines much, place the Center of the Draught the more out of the Center of the Plain.

LXXII. For by thus doing you gain a greater distance for those Hour-lines, which in declining plains fall nearer together on one side than they are on the other.

LXXIII. And you ought to do it in all declining Plains, except they decline far, as between eighty and ninety degrees, for then they are best to be drawn without Centers, to gain the more distance for the Hour-lines.

LXXIV. The Draught being thus placed on the Plain, and fastned with Pins or Tacks; transfer it upon the Plain, by laying the Ruler over every hour, half hour, and quarter division.

LXXV. And where the Ruler shall intersect the boundary lines in the Margin, there make marks, by drawing lines with a Black Lead Pencil of such length as each division requires, drawing the hour and half hour lines quite through the Margin, for the guiding you in the right placing the Figures.

LXXVI. Then draw the *Sub-stile* Line, as it lies in the Draught, that it may guide you in right placing the *Stile* of your Dial.

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LXXVII. This done, take the Draught off, and with *Vermillion* well ground and prepared, draw the boundary lines, as also the hours, half hours, and quarters.

LXXVIII. Let the color be as thick and stiff as you can work it, so as to draw a clear and smooth Line; the Lines being drawn, then with *Lamp-Black* delineate the Figures.

LXXIX. And in the Margin at the top of the Plain, you may put the date of the year, or some proper Motto.

LXXX. Lastly fix in, the *Stile* of your Dial, and paint it in like manner as you did the Dial before: thus is your Dial compleated.

LXXXI. *To gild the Figures of Sun-dials.* Draw the Figures or Letters you desire to have gilt with the Gold size (at Sect. 53. above) which let dry so long, till that by touching it with the end of your finger, it will stick a little, yet not come off.

LXXXII. Then take leaf Gold, lay it upon your gilding Cushion, and with a very sharp and smooth-edged knife, cut the Gold into such pieces as may best besit your work.

LXXXIII. Then with a flat stick lin'd with Cloth, take up your cut pieces of Gold, and transfer it to your size, upon which clap it down, and your Gold will leave your lin'd stick, and cleave to the size, which then press down with Cotton, or a Hares foot.

LXXXIV. Thus do till all your size is covered with Gold: and when it is perfectly dryed, with your Hares foot, brush off all the loose Gold, and the gilding will remain fair and beautiful.

LXXXV. Then if you please, Diaper on your plain with thin *Umber*, whatsoever shall be suitable to your design.

LXXXVI. *How to lay on your Smalt.* When you design to make the Margin of your Dial Blew, you must do it thus. After the figures are gilt, take white Lead, stiffly tempered with fat Oyl (at Sect. 51. above) and therewith cover over your whole Margin: and then with a small fine searse sift on your Smalt.

LXXXVII. Or otherwise with a Goose quill Feather, cover your Margin over with it, and with a piece of Cotton dab it down close, that it may stick fast to the ground laid under it.

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LXXXVIII. When it is all throughly dry, wipe off the loose color with a Feather, and blow the remainder off with a pair of Bellows; so is your work finished: the square of the Dial may also be colored Blew (if you so please) after the same manner.

LXXXIX. To Paint Wainscot, Doors, Windows, Posts, Rails, Pails, Gates, and other Timber work. This differs not much from the former method of Painting Sun-dials; you may proceed thus. Prime (the thing to be painted) first with *Spanish Brown*, as you did your Dial Plain, two or three times.

XC. Then take *White Lead* well tempered, or *Umber* and *White* or *Blew Balls*, or *Indico* and *White*, or any other Color you intend your work shall be done with; and that Color (what ever it be) let it be laid over your former Priming, four or five times successively after each Drying: for the oftner it is gone over, the longer it will last.

XCI. You may do it with variety of Colors, or Marble it as you please, so shall your work be finished according to your desire.

XCII. But here note, that Wainscotting, and other Paintings within Doors, need not be done above twice over, with the last Color; 'tis only that Painting which is exposed to the Air and Weather, that requires so many times running over it.

XCIII. And indeed, if it be not well and often done, it will not last long, or be of any considerable service.

C H A P. XVIII.

Of Washing Maps, Pictures, &c.

I. **BY** Washing we have intend nothing else, but either to set out Maps, or Printed Pictures in proper Colors.

II. The Instruments and Materials of Washing are chiefly these few, viz. 1. *Alum Water*. 2. *Size or Gum-water*, 3. *liquid Gold*. 4. *Pencils*. 5. *Colors*.

III. *To make Alum-Water*. Take Alum eight ounces: fair water, a quart: boil them till the Alum is dissolved.

IV. Or thus. Take spring or Well-Water a Gallon, Roch Alum a pound, powder and dissolve it in Water by boiling: filter it thro brown paper, and keep it for use.

V. With this water if you wet your Paper, before you lay on your Colors, it will keep them from sinking in, and withal add a Lustre and beauty to the Colors laid on.

VI. But this you must note, that if your Paper is not good, you must wash it over four or five times, which may be done with a large Brush Pencil.

VII. It is also to be noted, that *Alum* raises staining Colors, and preserves them from fading.

VIII. *To make Size*. Take Glew, and steep it all night in Water, then melt it over the fire, to see that it be neither too strong, nor too weak: then let a little of it cool: if it is too stiff when it is cold, put more water to it: but if too weak, put more Glew, and use it Luke-warm.

IX. *To make Gum-water*.

Take pure spring water a Quart: put it into a Jar-Glass; and hang therein a sufficient quantity of pure white and clear Gum-Arabick, bruised and tyed up in a rag: let it hang till the Gum is all dissolved.

X. Then put your fingers into the water, and if you find them to stick together as if they were glewed, your water is too stiff, or full of the Gum, which you must remedy by putting thereto more fair water; and if you find it too weak, you may help it by adding more Gum.

XI. With this water, or the former size, most colors are to be tempered, and with so much of the said Gum-water, which being toucht when dry, the color will not come off. where note, that if the color glister, there is too much Gum in it.

XII. *Liquid Gold.* It is exactly made by the first Section of the 21 Chapter of the second Book.

XIII. *Pencils* are to be of all sorts both fitch'd and pointed, as also a large pencil brush to paste Maps upon Cloth; another to wet the paper with Alom water; a third to starch the face of the Picture withal before it be colored: and a fourth to varnish withal.

XIV. The colors are the same with those which we mentioned in Chap. 17, lib. 2. to which add, 1. Of Black, Printers black, Frankford black. 2. Of Red, Vermilion, Rosset. 3. Of Blew, Verditure, Litmose, Flory. 4. Of Yellow, Cambogia, Yellow-berries, Orpiment. 5. Of Red Brazil, Logwood (ground) and Turnsole, Cochinele, Madder.

XV. But for the reason, that all those colors are not of use for staining or washing of Maps, Pictures, Globes, &c. Artists have selected out the most proper which are as follows.

XVI. 1. Red, Brasil, Turnsole, Indian Lake, Cochinele, Indian Cakes, Rosset, Cinnabar, Vermillion, Red-lead.

XVII. 2. Yellows, Aloes, Cambogia, Yellow-berries, Saffron, Masticot, Orpiment.

XVIII. 3. Blews, Litmose, Logwood, Indico, Verditer, Blew Bice, Smalt, Ultramarine.

XIX. 4. Greens, Verdigrise, Sap-green, Verditer, Green Bice.

XX. 5. Whites, Flake White, Spanish White.

XXI. 6. Browns, Wood-foot, Rinds of Green Walnuts, Walnut-tree Leaves, Spanish Brown, Umber, Iron Rust.

XXII. 7. Blacks, common Ink, Printers Black, Lamp-black, Ivory Black, Hartshorn Black.

XXIII. Of these Colors. 1. Some are to be burnt, as Spanish Brown, Umber, Printers Black, Lamp-black, Ivory Black, Hartshorn Black, which are afterwards to be ground.

XXIV. 2. Some are to be ground as Vermilion, Cinnabar, Indian Lake, Indico, White-lead, Spanish White, Masticot.

XXV. 3. Some are to be washed, as, Rosset, Red-lead, Bice, Verditer, Orpiment, Spanish Brown.

XXVI. 4. *Some are to be steeped, as, Aloes, Cambogia, Yellow-berties, Sap-green, Verdigrise, Indian Cakes, Saffron, Wood-foot.*

XXVII. 5. *Some are to be boyled, as, Brazil, Logwood, Turnsole, Green Walnut Rinds, Wood-foot. How these Operations are to be performed we have taught at large in lib. 2. cap. 22. to which I refer you.*

C H A P. XIX.

Of Colors simple for Washing of Maps, &c.

I. **Aloes.** Let it be dissolved in a weak Gum-water; it makes a deep or sad kind of Yellow Color, according to the goodness of the Aloes.

II. **Brazil.** To some ground Brazil put small Beer and Vinegar, of each a sufficient quantity, let it boyl gently a good while, then put therein Alum in powder to heighten the color, and some Gum-Arabick to bind it; boyl it till it taste strong on the tongue, and make a good red, Pink color, or light Violet.

III. **Logwood.** Ground Logwood boiled as Brazil, makes a very fair transparent Violet or Purple Color.

IV. **Cochenele.** Steeped as Brazil was boiled, makes a fair transparent purple: as thus, take Cochinele, and put it into the strongest Sope-lees to steep, and it will be a fair purple, which you may lighten or deepen at pleasure. Infused in strong Vinegar, it makes a transparent purple.

V. **Madder.** Take madder four drachms, ground Brazil one ounce, Rain-water a quart; boil away a third part; then add Alum half an ounce boil it to a pint; then Gum-Arabick one ounce, which boil till it is dissolved, cool it stirring it often, and strain it for use. It is a good Scarlet die for Leather.

VI. **Verdigrise.** Take Verdigrise ground finely one ounce, put to it a good quantity of common varnish, and so much oyl of Turpentine, as will make it thin enough to work withal; it is a good green.

VII. Fine Verdigrise, dissolved in Rhenish wine or Vinegar, makes a transparent Green inclining to blew.

VIII. Ground with juice of Rue and Gum-water, it is a pure Green: without the juice, it makes a glorious emerald, mixt with Crystals of Tartar in white-wine Vinegar, in which Gum-Arabick has been dissolved, makes a pure Green.

IX. And Verdigrise, Alum, of each one drachm, Logwood three drachms, boiled in Vinegar, make a good Murry.

X. *Gambogia*. Dissolve it in fair spring water, and it will make a beautiful and transparent yellow: if you would have it stronger, dissolve some Alum therein: it is good for Silk, Linnen, white Leather, Parchment, Vellom, Paper, Quills, &c. This color delights in no mixtures.

XI. *To make Verdigrise according to Glauber.*

This color is made with *Venus* in Vinegar in earthen pots set into hot horse dung: but if you dissolve your *Venus* with spirit of Nitre, and precipitate with a lye made of Salt of Tartar, edulcorating and drying the *Venus* will yield an excellent Verdigrise, which will not corrode other colors as the common Verdigrise doth.

XII. *To make Ceruse according to Glauber.* It is made with Saturn and Vinegar in an Earthen pot set in horse-dung: but if you dissolve your Saturn with Spirit of Nitre, and precipitate with Salt water, you will have a Ceruse whiter and purer than the ordinary, and much better whether for Painting or Chyrurgery.

XIII. *Yellow Fustick-berry*. Boil it in water or steep it in Alum water, it makes a good and transparent yellow for the same purpose.

XIV. *Turnsole*. Put it into a sharp Vinegar over a gentle fire till the Vinegar boil, and is colored; then take out the Turnsole and squeeze it into the Vinegar, in which dissolve a little Gum-Arabick; it shadows very well on a Carnation or yellow.

XV. *Litmose*. Cut it into small pieces, and steep it a day or two in weak Gum-Lake water, and you will have a pure transparent blew water to wash with.

XVI. *Flory Blew*. Grind it with glair of Eggs, if then you add a little Rosset it makes a light Violet blew; mixed with White and Red-lead, it makes a Crane feather color.

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XVII. *Saffron.* Steeped in Vinegar and mixed with gum-water is a good yellow. In White wine or Sack, it makes also a good yellow; but more glorious if mixt with equal parts of Cochenele: you may also steep it in glair of Eggs, or grind it with Vermilion.

XVIII. *Indian Lake.* Ground with Gum-Arabick water, makes a glorious Murry; in grinding it, add a little Sugar-candy: some say it makes a deep Pink or Bloom color.

XIX. *Vermillion.* Being ground with glair of Eggs and Honey or Gum-water, it makes a deep Red, or Scarlet color.

XX. *Red-lead.* Grind it with a stiff Gum-lake water; if you add Saffron, it makes it Orient, and of a Marigold color: of it self it is between Red and an Orange color.

XXI. *Rosset* Washed and tempered with Gum-water, differs not much in color from Indian Lake; but it will soon fade and grow lighter; but being tempered with Brasil-water, it will be more deep.

XXII. *Indian-Cakes.* Use them as ye do Turnsole (at Sect. 10. above) they make a good transparent Red color: into the liquor put some Gum to bind it.

XXIII. *Masticore.* Ground and tempered with Gum-water, makes a good yellow, but not transparent.

XXIV. *Orpiment.* Washed and colored with Gum-water, makes an Orient or Gold color: there are several degrees of it, some more red, others more yellow.

XXV. *Verditer.* Washed and tempered with Gum-water, is a good blew, but not transparent, or inclining to a Green.

XXVI. *Indico.* Ground and tempered with Gum-water, makes a deep blew, and is fit to shadow all other blews.

XXVII. *Blew Bice.* Washed and tempered with Gum-water, it is an excellent blew: there are several sorts of it, some lighter, some sadder.

XXVIII. *Blew Bice, Verditure, and smalt,* ground singly with Gum-water (or together) make a good blew.

XXIX. *Smalt.* Ground with a little fine Rosset, makes a deep Violet.

XXX. *Ultramarine.* If you would have it deep, grind it with Litmose water; it is the best and dearest of all blews.

XXXI. *Sap-green.* Steep it in sharp Vinegar all night, to which add a little Alum to raise its color. In Alum water it makes a good green to shadow with.

XXXII. *Green Bice.* Washed and tempered with Gum-water, makes a good, but no transparent Green.

XXXIII. *Lamp-black or Printers black.* Burnt, ground and tempered with Gum-water, make a good black.

XXXIV. *Ivory black.* Burnt, ground and tempered with Gum-water, as the former makes also a good black.

XXXV. *Flake-Lead.* Ground and tempered with Gum-water, is an excellent white.

XXXVI. *Spanish White.* Ground and tempered in like manner with Gum-water, makes the best of all whites.

XXXVII. *Spanish Brown.* Burnt, ground, and tempered with Gum-water, makes a Redish brown, or Liver color.

XXXVIII. *Umber.* Burnt and ground, and tempered with Gum-water, makes a good haw color; and is very good to shadow with upon Gold.

XXXIX. *Green of Walnuts.* Boiled in water and strained, and Gum-Arabick dissolved in the liquor to bind it, makes an excellent color to express High-ways, Lanes, &c.

XL. *Wood Soot.* Prepared in all respects as the former, serves to the same intentions; and is much the better color.

XLI. *Native Cinnabar.* Grind it as Red-Lead, it is a glorious Red color; much exceeding the Artificial.

CHAP. XX.

Of Compounded Colors for Washing of Maps, &c.

I. **O***Range Color.* Red-lead and Yellow berries make a good Orange color: thus, take Arnotto half an ounce, Pot ashes one Drachm, water one pound, boil it half away, then strain it, and use it hot.

It is good for White Leather, Paper, Vellom, Quills, Parchment, &c.

II. *Green.* Take distilled vinegar, filings of Copper, digest till the vinegar is blew, which let stand in the Sun or a slow fire till it is thick enough, and it will be a good green.

III.

III. Or thus, Take Cedar-green (which is best of all) or in stead thereof green Bice, steep it in Vinegar, and strain it; then grind it well with fair water, and put to it a little honey, and dry it well; when you use it, mix it with Gum-water.

IV. To make fine Indico.

Take the blossoms of Woade three ounces, Amylum one ounce, grind them with Urine and strong Vinegar, of which make a Cake, then dry it in the Sun, and so keep it for use.

V. A Blew to wash upon paper.

Take of the best Azure an ounce, Kermes two ounces, mix them, which temper with clear Gum-water, and it will be a glorious color.

VI. To make a Venice Blew.

Take quick Lime, make it into a paste with strong Vinegar, half an hour after put thereto more Vinegar to soften it; then add Indico in fine powder one ounce, mix them, and digest it in horse-dung for thirty or forty days.

VII. Another excellent Blew.

Mix fine white Chalk with juice of Elder-berries full ripe, to which put a little Alum-water.

VIII. To make blew Smalt.

Take fluxible sand, Sal-Nitre and Cobalt, mix them together.

IX. A lively Yellow.

Dissolve Orpiment in gum-water, to which put a little ground Vermilion; grind them together and you shall have a very lively color.

X. A light Green. Take juyce of Rue, Verdigrise, and Saffron, grind them well together and use them with gum-water.

XI. Or thus, Take Sap-green, Flower-de-luce, or Tawny green, which steep in water: Verditure and Ceruse mixt with a little Copper green, make a good light color.

XII. Blew. Ultramarine, blew-Bice, Smalt, and Verditure, ground singly with gum-water, or together make a good blew.

XIII. Brown. Ceruse, Red-lead, English Oker, and Pink; make a good brown.

XIV. Spanish-brown. To color any Horse, Dog, or the like, you must not calcine it; (yet not calcined it is a dirty color): but to shadow Vermilion or lay upon any dark ground, behind a picture, to shade berries in the darkest places, or to

color wooden posts, wainscot, bodies of Trees and the like, it is very good (being burnt.)

XV. *Flesh Color.* Mix white, Indian Lake, and Red-lead (according as you would have it light or deep,) and to distinguish a mans flesh from a womans, mingle with it a little Oker.

XVI. *Colors of Stones.* Verdigrise with Varnish makes an Emerald : with Florence Lake a Ruby ; with Ultramarine a Sapphire.

XVII. *A never fading Green.*

Take juice of flowers of Flower-de-luce, put it into Gum-water and dry it in the Sun.

CHAP. XXI.

Of mixing Colors and Shadowing.

I. **I**N mixing be careful not to make the color too sad, nor take the pencils out of one color and put them into another.

II. In mixing colors, stir them well about the water severally till they are well mixed ; then put them together, making the color sadder or lighter at pleasure.

III. *Green* is shadowed with Indico and yellow-berries.

IV. *Blew* is shadowed with Indico, Lirmose and Flory, or any of them being steeped in Lees of Sope-ashes, and used with gum-water.

V. *Garments* are shadowed with their own proper colors : or you may mingle the color with white (for the light) and shadow it with the same color unmingled : or you may take the thinnest of the color for the light, and shadow with the thickest or bottom of the same.

VI. *Sap-green* is only used to shadow other greens with, and not to be laid for a ground in any Garment.

VII. *Lake* ought not to be shaded with any color, for it is a dark red ; but for variety you may shadow it with Bice, or blew Verditure, which will make it like changeable Taffata.

VIII.

VIII. The shadow for *Yellow-Berries* is Umber; but for beauties sake with Red-lead, and the darkest touches with Spanish-brown; and for variety with Copper-green, blew Bice or Verditure.

IX. *White* sets off *blews* and *blacks* very well: *Red* sets off well with *yellow*: *Yellows* with *reds*, *sad blews*, *browns*, *greens*, and *purples*.

X. *Blews* set off well with *yellows*, *reds* *whites*, *browns*, and *blacks*: and *Greens* set off well with *purples*, and *reds*.

XI. More especially, all light colors are shadowed with colors of the same nature, but more sad; as for Example: *Vermilion* is shadowed with *Lake* or *Spanish brow*. *Verditer* and *Bice* are shadowed with *Indico*.

XII. *Camboge* and *yellow berries* are shadowed with *Umber*, with *Red-lead* or *Vermilion*.

XIII. *Red-Lead* is shadowed with *Lake* or *Spanish brown* *Masticote*, is shadowed with *Red Orpiment*.

XIV. *Spanish brown* is shadowed with burnt *Umber*, with *Brasil-water*.

XV. *Umber* is shadowed with *Umber burnt*, *Rosset* & *Brasil* are shadowed with *Spanish brown* mixed with *brasil-water*.

XVI. *Verdigrise* is shadowed with *Indico* mixed with *yellow berry water*.

XVII. *Wood Soot* and *Walnut-shells* are shadowed with *Umber*.

XVIII. From the various mixtures of the foremention'd Colors, infinite varieties almost may arise, even whatsoever one pleases.

XIX. But for our purpose of washing *Maps*, *Globes* *Pictures*, *Landskips*, &c. the most transparent colors are principal; of which these are chief, viz. *Brasil*, *Logwood*, *Indian cakes*, *Turnsole*, *Cambogia*, *Saffron*, *yellow berries*, *Litmo-se*, *Sap-green*, *Verdigrise*, *Wood Soot*, *green Walnut shells*: of these you may by mixture make several compounds, as.

XX. *A Compound Green*. Mix *verdigrise water* with *yellow-berry-water*: it will be transparent, and you may make it deeper or lighter according to the proportion that you take of either.

XXI. *A Compound blew color*. Mix *Litmo-se water* with *yellow-berry water*, and you will have a transparent sad blew, which you may heighten or deepen as the former at pleasure.

XXII. *A Compound Orange Color.* It is made by mixing Brasil water with yellow-berry water of a transparent color. Infinite other Varieties you may find out by practice, much better than to learn them by many words. See other discourses of this work.

CHAP. XXII.

Of Colors for washing Landskips.

I. **G**reen mixed with white, Pink, Bice, Masticot, Smalt, Indico, or Ceruse; or blew Verditure mixt with a few yellow berries makes a good green for Landskips.

II. For the *saddest hills* use Umber burnt: for the *lightest places* put yellow to the burnt Umber: for *other hills* lay Copper green thickned on the fire, or in the Sun.

III. For the next *hills farther off* mix yellow berries with Copper green: let the fourth part be done with green Verditure; and the *furthest and faintest places* with blew-Bice, or blew Verditure mingled with white, and shadowed with blew Verditure, in the shadows indifferent thick.

IV. Let the *high-ways* be done with red and white Lead, and for variety Yellow-oker; shadow it with burnt Umber, which you may use for sandy Rocks and Hills.

V. *Rocks* may be done with several colors, in some places black and white, in other places red and white, and in others blew and white, and the like, as you see convenient.

VI. *The water* must be black Verditure and white, shadowed with green and blew Verditure, when the *banks* cast a green shadow upon the water, and the water is dark shadowed, then shade it with Indico, green thickned, and blew Verditure.

VII. *Color buildings* with as much variety of pleasant colors as may be imaginable, yet let reason be your rule in mixing your colors.

VIII.

VIII. You may sometimes use white and black for the *Wall, Conduits* or other things: for *Brick-houses* and the like, red-lead and white.

IX. If *many houses* stand together, set them off with variety of colors, as *Umber* and white; *Lake* and white; *Red-lead* and white, and the like.

X. Lastly, for the *Skie*, use *Masticot* or yellow-berries, and white for the *lowest and lightest places*; red *Rosset* and white for the *next degree*; blew *Bice* and white for the *other*; blew *Bice*, or blew *Verditure* for the *highest*.

XI. These degrees and colors must be so wrought together, that the edge of each color may not receive any sharpness; that is, so as that you cannot perceive where you began to lay them, being so drowned one into another.

CHAP. XXIII.

Of the Practice of Washing.

I. With the *Alum water* wet over the pictures to be colored, for that keeps the colors from sinking into the paper, and will add a lustre unto them, make them shew fairer, and keep them from fading.

II. Then let the paper dry of it self (being washed with *Alum-water*) before you lay on the colors; or before you wet it again, for some paper will need wetting four or five times.

III. The washing of the paper with the *Alum-water* must be done with a large pencil brush, such as we have advised to at the sixth Section of the nineteenth Chapter of this Book.

IV. But if you intend to varnish your Pictures after you have colored them; instead of washing them with *Alum-water*, first size them with new size made of good white starch, with a very fine brush; and this you must be sure to do all over, for else the varnish will sink through.

V. Having thus prepared your work, go to laying on your colors according to the former directions, suiting them, as near as may be, to the life of every thing.

VI. But before you lay on your Colors, you must know how to temper them; which you may do in this manner.

VII. 1. Such colors as are ground with fair water: take a small quantity of them, put it into a Horse Muscle-shell, putting thereto some Gum-water, and the Color in a little time will be softened: then with your finger being very clean bruise the Color against the shell till you find no knot undissolved: after with a clean pencil stroak down the color to the bottom of the shell, and it is fit for use; if it be too thick, add more gum water to it.

VIII. 2. Such colors as are washed you must temper in a shell with Gum-water in the same manner as the former.

IX. 3. Such Colors as are steeped, the liquor only of them is to be used without any other preparation.

X. The Picture being painted, you may with size (as at the fourth Section of the nineteenth Chapter of this Book) paste your Maps or Pictures upon cloth, thus: wet the sheet of cloth therein, wring it out, and strain it upon a Frame, or nail it upon a wall or board, and so paste your Maps or Pictures thereon.

XI. Lastly, if the Picture be to be varnished, having thus fixed it into its proper Frame, then varnish it with a proper varnish (by the following rules) and the work will be fully finished.

How to lay on your Colors.

XII. First, provide your self of pencils of several sizes, and if you will be curious, you ought to have a great and a small to each respective color: if not you must always have by you a dish of fair Water, in which you must wash and cleanse your pencil, wiping it with a clean linnen cloth, before you put it into another Color.

XIII. For your pencils, chuse those that are good, thus: see that they be fullest next to the quill, descending or lessening into a small room and sharp point, which you may see by putting the hair into your mouth, and drawing it through your lips once or twice; then you will see what it is, and if you find any extravagant hairs, singe them off by a Candles flame.

XIV. Being thus provided with Colors and pencils; if you design to lay any color about the edges of any Map, Part, Piece, or division of Ground, in a Plat; as suppose you

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you would inclose a particular Field or Close in a Manner, with yellow.

XV. With your pencil take Camboge or yellow-berry water a very small quantity, and on the inside of the black-lead line, draw the Color along of an equal breadth (as near as you can) from the line, broader or narrower as your field is in bigness; not daubing the field or close all over with the Color, which would be put an abuse to your Map or Plat.

XVI. Then having gone round the Close or Field in this manner, with your Color, wet your Pencil in your mouth, or have by you a small quantity of water to dip it in, and strike along the inside of the colored line, bringing it more down towards the center of the field.

XVII. And this will sweeten your Color, and make it shew as if it lost it self by degrees, to the very color of your paper or parchment. This course is to be taken not only for yellows, but for all other colors.

XVIII. Lastly, with a pen (if you cannot do it handsomly with a pencil,) take some of the color which shadows the color you have already used about the field, and go over your black-lead line only, so shall your field be finished.

XIX. Lastly, after the same manner you may adorn all the fields in your Plat or Map, of divers colors observing this, that you color not two fields adjoyning one to another both of the same color, but of different.

XX. And therefore it behoves you to know what colors do set off one another best; and as near as you can, to lay Closes or Fields, adjoyning one to another, of two such colors, that one shadow may serve both.

C H A P. XXIV.

Experimental Observations on Vegetable Colors.

I. **A** strong Infusion of Galls filtered, mixed with a strong and clear solution of Vitriol, makes a mixture as black as Ink: which with a little strong Oil of Vitriol is made Transparent again: after which, by the affusion of a little quantity of a strong Solution of Salt of Tartar, it regains its black color again. The first black (altho pale in writing yet) being dry, appears to be good Ink.

II. A decoction of dried red Roses in fair water, mixed with a filtrated solution of blew Vitriol, makes a black color; this mixed with a little *Aqua fortis*, turns it from a black, to a deep Red: which by affusion of a little Spirit of Urine, may be reduced straight to a thick and black color.

III. *Yellow Wax* is whitened by dissolving it over the fire in Spirit of Wine, letting it boil a little, and then exhaling the Spirit; or else whilst it is hot, separating it by filtration.

IV. Fair water mixed with a blood red Tincture of Benjamin drawn with spirit of Wine, immediately makes it of a milk white color.

V. *Blackness* may be taken away with oyl of Vitriol; so black pieces of Silk or Hair I have turn'd to a kind of yellow.

VI. A handful of *Lignum Nephriticum* rasped, infused in four pound of spring water, yields between the light and the eye an almost golden color (unless the infusion be too strong) but with the eye between the light and it (in a clear vial) a lovely blew as indeed it is: this with spirit of Vinegar may be made to varnish (still keeping its golden color) and after with oyl of Tartar *per deliquium* may be restored again.

VII. Cloth died with blew and Woad, is by the yellow decoction of *Luteola* died into a green.

VIII.

VIII. Syrup of Violets mixed with a high solution of Gold in *Aqua regia*, produces a reddish mixture; and with a high solution of filings of Copper in spirit of Urine, a lovely fair green.

IX. Syrup of Violets mixt with a little juyce of Lemons, spirit of Salt, Vinegar, or the like acid Salt, will be immediately red; but mixt with oyl of Tartar, or a solution of potashes it will in a moment be perfect green: the like in juice of blew-bottles.

X. A good quantity of oyl of Tartar, put into a strong solution of Verdigrise, gives a delightful blew, which may be variously changed by adding spirit of Urine, or Hartshorn.

XI. Although red Roses hung over the fume of Sulphur lose all their redness, and become white, yet oyl of Sulphur (which is nothing but the fumes condensed) doth wonderfully heighten the tincture of the same.

XII. *Cochenele* will have its color far more heightened by spirit of Urine than by rectified spirit of Wine: and one grain of *Cochenele* in a good quantity of spirit of Urine, being put into one hundred twenty six ounces of water, tinged it (although but faintly:) which amounts to above one hundred twenty five thousand times its own weight.

XIII. Twenty grains of *Cochenele* being mixed with an ounce of *Saccharum Saturni*, makes a most glorious purple color: and so accordingly as the quantity is either diminished or encreased, so the purple color shall be either lighter or deeper.

XIV. A few grains of *Cochenele* being mixed with the *Lixivium* of Quick-lime in a due proportion, makes a fading purple color, of the greatest glory imaginable in the world.

XV. The juice of privet berries with spirit of Salt, is turned into a lovely red: but with a strong solution of potashes into a delightful green.

XVI. Upon things red by nature, as Syrup of Clove-gilliflowers, juice of Buckthorn berries, infusion of Red Roses, Brazil, &c. Spirit of Salt makes no considerable change, but rather a lighter red: but other salts turn them into a greenish; especially juice of buckthorn berries.

XVII. Juice of *Jasmin* and snow drops, by a strong *alkaline* solution, was (although of no color) turned into a deep greenish yellow.

XVIII.

XVIII. *Buckeborn Berries* being gathered green and dried are called *Sap-berries*, which being infused in Alum-water gives a fair yellow (*which is used by Book-binders for the edges of their Books, and to color Leather also:*) being gathered when they are black, they are called *Sap-green*, and make a green color being put into a Brass or Copper vessel for three or four days; or a little heated upon the fire, and mixed with Alum in powder, and pressed forth; so put into bladders, hanging it up till it is dry: and being gathered about the end of November, (when they are ready to drop) they yield a purplish color.

XIX. Tincture of *Cochenele*, diluted never so much with fair water, will never yield a yellow color: a single drop of a deep solution in spirit of Urine, diluted in an ounce of fair water, makes a fair Pink, or Carnation.

XX. Oyl or spirit of Turpentine, digested with pure white Sugar of lead, yields in a short time a high red tincture, which Chymists call *Balsamum Saturni*.

XXI. Spirit of Salt dropt into a strong infusion of *Cochenele* or juice of black cherries, makes immediately a fair red: but dropt into the infusion of Brazil, a kind of yellow: so the filtrated tincture of *Balaustins* mixed with good spirit of Urine, or the like, turns of a darkish green; but with spirit of Salt, a high redness, like rich Claret wine; which glorious color may in a moment be destroyed, and turned into a dirty green, by spirit of Urine.

XXII. A high infusion of *Lignum Nephriticum*, mixed with spirit of Urine gives so deep a blew, as to make the liquor opacous: which after a day or two vanishes, and leave the liquor of a bright amber color.

Where note that instead of Spirit of Urine you may use oyl of Tartar, or a strong solution of pot-ashes.

XXIII. Infusion of Log-wood in fair water (mixt with spirit of Sal-Armoniack) straight turns into a deep, rich, lovely purple; two or three drops to a spoonful is enough, lest the color be so deep, as to be opacous.

XXIV. Spirit of Sal-Armoniack will turn syrup of Violets to a lovely green.

XXV. Infusion of *Litmose* in fair water gives in a clear glass a purple color: but by addition of spirit of Salt, it will be wholly changed into a glorious yellow.

XXVI. The Infusions and juices of several plants will be much altered by a solution of Lead in spirit of Vinegar: it will turn infusion of red Rose leaves into a sad green.

XXVII. So Tincture of red Roses in fair water, would be turned into a thick green, with the solution of *Minium* in spirit of Vinegar; and then with the addition of oyl of Vitriol the resolved Lead would precipitate white, leaving the liquor of a clear, high red color again.

XXVIII. We have not yet found, that to exhibit strong variety of colors, there need be employed any more than these five. White, Black, Red, Blew, Yellow: for these being variously compounded and decomposed, exhibit a variety and number of colors; such as those who are strangers to painting can hardly imagine.

XXIX. So Black and White variously mixed, make a vast company of light and deep Grays: Blew and Yellow, many Greens; Red and Yellow, Orange-tawnies: Red and White Carnations: Red and Blew, Purples, &c. producing many colors for which we want names.

XXX. Acid salts destroy a blew color: Sulphureous, Urinous or fixed restore it.

XXXI. Acid and *Alcalazate* salts with many bodies that abound with Sulphureous or oily parts will produce a red, as is manifest in the Tincture of Sulphur, made with *Lixiviums* of Calcined Tartar or pot-ashes.

XXXII. Lastly it may be worth trial (since it hath succeeded in some experiments) so to take away the color of a Liquor, as that it may be colorless: which in what we have tryed, was thus: first by putting into the Tincture, Liquor, or Juice, a quantity of the solution of pot-ashes or oyl of Tartar *per deliquium*; and then affusing a good or strong solution of Alum, which in our observations precipitated the tinging matter, or gathered it into one body (like as it were curds) and so left the Liquor transparent and clear as Crystal.

C H A P. XXV.

Experimental Observations of Mineral-Colors.

I. *S*ublimat dissolved in fair water, and mixed with a little spirit of Urine, makes a milk white mixture in a moment: which by addition of *Aqua fortis*, immediately again becomes transparent.

II. If *Sublimat* two ounces, and *Tin-glass* one ounce be sublimed together, you will have a sublimate not inferior to the best *Orient Pearls* in the world.

III. *Silver* dissolved in *Aqua fortis* and evaporated to dryness, and fair water poured two or three times thereon, and evaporated, till the *calx* is dry, leaves it of a Snow whiteness: which rubbed upon the skin, (wetted with spittle, water or the like) produces a deep blackness, not to be obliterated in some days.

With this, Ivory, Hair and Horns may be dyed in fair water of a lasting black.

IV. *Coral* dissolved by oyl of Vitriol, Sulphur, or spirit of vinegar, and precipitated by oyl of Tartar yields a Snow whiteness. The same of Crude Lead and Quicksilver dissolved in *Aqua fortis*: So butter of Antimony rectified by bare affusion in much fair water, will (though Unctious) be precipitated into that Snow white powder which (being washed from its corrosive Salts), is called *Mercurius Vitæ*: the like of which may be made without the addition of any Mercury at all.

V *Mercury Sublimat* and precipitate yield (with the spirit of Urine, Hartsborn, or the like) a white precipitate: but with the solution of Pot-ashes or other Lixivate Salts an Orange Tawny. And if on a filtrated solution of Vitriol, you put the solution of a fixed salt; there will subside a copious substance far from whiteness, which Chymists call the Sulphur of Vitriol.

VI. If Copper two ounces be mixt with Tin one ounce, the reddishness will vanish: and if Arsenick (calcined with Nitre) in a just proportion be mixed with melted Copper, it will be blanch'd both within and without.

VII. Fine pouders of blew Bice, and yellow Orpiment slightly mixed, give a good green: and a high yellow solution of a good Gold in *Aqua Regia*, mixed with a due quantity of a deep blew solution of crude Copper in strong Spirit of Urine, produces a *transparent green*: And so blew and yellow *Enamel* fus'd together in the flame of a Lamp, being strongly blowed on without ceasing, produces at length a green color.

VIII. An urinous salt, largely put into the dissolution of blew Vitriol in fair water, turn'd the liquor and corpuscles (which resided) into a yellowish color like yellow Oker.

IX. Verdigrise ground with *Sal-Armoniack* and the like (digested for a while in a dunghil) makes a glorious blew.

X. The true glass of *Antimony* extracted with acid spirits (with or without Wine) yields a red tincture.

XI. Balsam of Sulphur (of a deep red in the glass) shaken about, or dropt on paper gives a yellow stain.

XII. If Brimstone and *Sal-Armoniack* in powder, of each five ounces, be mixed with quick-lime in powder six ounces, and distilled in a Retort in sand by degrees; you will have a volatile spirit of Sulphur of excellent redness, though none of the ingredients be so.

So also oyl of Anniseeds mixed with oyl of Vitriol, gives in a trice a blood red Color, which soon decays.

XIII. Fine Silver dissolved in *Aqua fortis*, and precipitated with spirit of Salt; upon the first decanting the liquor, the remaining matter will be purely white: but lying uncovered, what is subject to the ambient Air will lose its whiteness.

XIV. *Sublimate* dissolved in a quantity of water and filtered, till it is as clear as Crytal, mixed (in a Venice glass) with good oyl of Tartar *per deliquium* filtered (three or four drops to a spoonful) yields an opacous liquor or a deep Orange color; after which if four or five drops of oyl of Vitriol be dropt in, and the glass straightway be strongly shaken, the whole liquor will (to admiration) be colorless without sediment. And if the filtered solution of sublimed *Sal-Armoniack*

niack and *Sublimate* of each alike be mixt with the solution of an *Alkali*, it will be white.

XV. Spirit of *Sal-Armoniack* makes the solution of *Verdigrise* an excellent *Azure*; but it makes the solution of *Sublimate* yield a white precipitate.

XVI. So the solution of filings of Copper in spirit of Urine (made by fermentation) gives a lovely *Azure* color which with oyl of Vitriol (a few drops to a spoonful) is deprived in a trice of the same, and makes it like fair water. And so a solution of *Verdigrise* in fair water, mixed with strong spirit of Salt, or dephlegmated. *Aqua fortis*, makes the greenness almost totally to disappear.

XVII. Quick-silver mixed with three or four times its weight of good oyl of Vitriol, and the oyl drawn off in sand, through a glass retort, leaves a Snow white precipitate; which by affusion of fair water, becomes one of the loveliest light yellows in the world, and a durable color.

XVIII. Tin calcined *per se* by fire, affords a very white calx called Putty: Lead, a red powder called *Minium*: Copper a dark or greyish powder: Iron a dirty yellowish color, called *Crocus Martis*: and Mercury a red powder.

XIX. Gold dissolved in *Aqua regia* Ennobles the *Menstruum* with its own color: Silver Coyn dissolved in *Aqua fortis* yields a tincture like that of Copper; but fine Silver a kind of faint blewishness: Copper dissolved in spirit of Sugar (drawn off in a glass Retort) or in oyl or spirit of Turpentine, affords a green tincture; but in *Aqua fortis*, a blew.

XX. Vermillion is made of Mercury and Brimstone sublimed together in a due proportion.

XXI. Glass may have given to it a lovely golden color with Quick-silver; but it is now colored yellow generally with calx of Silver: yet shell-Silver, (such as is used with pen or pencil) mixed with a convenient proportion of powdered glass in three or four hours fusion, gave a lovely Sapphirine blew.

XXII. Glass is tinged green (by the Glass-men) with the Calx of Venus: which Calx mixed with an hundred times its weight of fair glass gave in fusion a blew colored mass.

XXIII. Putty (which is Tin calcined) as it is white of itself so it turns the purer sort of glass metal into a white mass, which when opacous enough, serves for a white Enamel.

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XXIV. This white *Amel* is as it were the Basis of all those fine Concretes, that Gold-smiths, and several Artificers use, in the curious Art of *Enameling*; for this white and fusible substance, will receive into it self, without spoiling them, the colors of divers other Mineral substances, which like it, will endure the fire.

XXV. Glass is tinged blew with the dark mineral called *Zaffora*: and with *Manganese* or *Magnesia* in a certain proportion, Glass may be tinged of a Red Color; and also of a Purplish or Murry: and with a greater quantity, into that deep color, which passes for black.

XXVI. Yellow Orpiment sublimed with sea-salt, yields a white and Crystalline Arsenick: *Arsenick* calcined with pure Nitre being duly added to *Venus* in the fusion, gives it a Whiteness both within and without.

XXVII. So *Lapis Calaminaris* turns *Venus* or Copper, into Brass.

XXVIII. And *Zink* duly mixed with *Venus* when it is in fusion, gives it the noblest golden Color, that was ever seen in the best Gold, but it will not endure various meltings.

XXIX. Copper dissolved in *Aqua-fortis* will imbue several bodies of the Color of the solution.

XXX. Gold dissolved in *Aqua Regia* will (tho not commonly known) dye Horns, Ivory, and other Bones of a durable Purple Color.

XXXI. Lastly, Crystals of Silver made with *Aqua fortis* (tho they appear White) will presently dye the Skin, Nails, Hair, Horns, and Bones, with a Black not to be washed off.

C H A P. XXVI.

Of Metals.

I. **T**O harden Quick-silver.

Cast your Lead separated from its dross into a vessel, and when it begins to cool, thrust in the point of a stick, which take out again and cast in the Argent Vive, and it will congeal: then beat it in a mortar, and do so often; when it is hard, melt it often and put it into fair water, doing it so

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long till it is hard enough, then being all in a piece, boyl it in Linseed oyl, the space of six hours, and it will become Malleable, and may be hammered.

II. To tinge Quick-silver of the color of Gold.

Break it into small pieces (being hardned) which put into a Crucible, with the pouders of *Cadmia*, *stratum super stratum*, mixed with Pomegranate peels, Turmerick (beaten fine) and Raisons, cover the Crucible and lute it well, dry it well; and then set it on a fire for six or seven hours, that it may be red-hot; then blow it with bellows till it run, which then let cool whilst covered with coals, and it will have the color of gold.

III. To fix Quick-silver being hardned.

This is done with fine powder of Crystal glasse, laid with the Metal *stratum super stratum* in a Crucible covered and luted; heating it all over red-hot, and then melting of it.

IV. To make Quick-silver malleable.

First harden it by the first Section, then break the Metal into small pieces, and boil it a quarter of an hour in sharp vinegar: then add a little *Sal-Armoniack*, and digest all together for ten or twelve days; then boil all together in a luted Crucible, till it is red-hot, and by degrees crackt, Lastly, hang the Mercury in a pot with Brimstone at bottom: cover it, lute it and set it into the fire, that it may grow hot by degrees, and receive the fume of the Sulphur; do thus for a month once a day, and the Mercury will run and be hammered.

V. Another way of tinging Mercury.

Take purified Mercury one ounce, Sulphur two ounces, *Aqua fortis* three ounces, let them all stand till the water grow clear; distil this with its sediment, and at bottom of the Limbeck you shall find the Mercury hard, and of an exact color.

VI. To color and soften Gold.

Dissolve Verdigrise in vinegar, and strain it through a felt, then congeal, and when it begins to wax thick, put to it some *Sal-Armoniack*, and let it harden a good while, then melt gold with it, and it will heighten the color and make it soft.

VII. To make Gold and Silver softer.

Take Mercury Sublimate, *Sal-Armoniack*, of each alike; powder them, melt the gold, and put to it a little of this powder, and it will be soft.

VIII.

VIII. *Another way to do the same.*

Take Vitriol, Verdet, Sal-Armoniack, burnt Brass, of each half an ounce, mix them with *Aqua fortis*, let it so repose in the heat two days, then let it harden, do thus three times with *Aqua fortis*, and let it dry, make it into powder, to one drachm put one ounce of gold three times, and it will be softer.

IX. *Amber way to do the same in Silver.*

Take Salt-peter, Tartar, Salt, Verdet, boil all together, till the water is consumed, then put to it Urine, and let it so consume, and you shall have an oyl, which put into melted Silver will do the same.

Or thus, Take as many wedges as you have melted, put them one night into a crucible in a furnace, but so as they melt not, and they will be soft and fair.

Or thus, Take honey, oyl, of each alike, in which quench the Gold or Silver three or four times, and it will be softer.

Or thus, Take Mastick, Frankincense, Myrrh, Borax, Ver-nix, of each a like in powder.

Or thus, Quench the Gold or Silver in water of Sal-Armoni-ack, and it will be soft.

X. *To tinge Silver of a Gold color.*

Take fine Gold, fine Silver, good Brass, and Brass or Copper calcined with Sulphur-vive, of each alike, melt them down together, and it shall appear to be gold of eighteen carats fine.

XI. *Another way to tinge Silver.*

Take Quick-silver, purged three ounces, leaf-gold one ounce, mix them and put them into a glass Retort well luted, put it on the fire till it grow hot; then take it off, and add to it Quick-silver purged two ounces, Sal-Armoniack one ounce, Sal Ellebrot half an ounce, Borax two drachms, then seal up the glass hermetically, and put it into a continual fire for three days; then take it out, let it cool, open the Retort, take out the matter, and ponder it very fine; of which powder mix one ounce with silver five ounces, and it will tinge it into a good gold color.

Note, Sal Ellebrot is thus made. Take pure common Salt, Sal Gem, Sal Alkali in powder, of each one ounce, juice of Mints four ounces, spring water four pound, mingle them, and evaporate. And Quick-silver is purged by washing it in sharp Vi-

negar three or four times and straining it thro' Shamoi Leather; or by subliming it, which is better.

XII. To bring Silver into a Calx.

This is done by amalgamating of it with Quick-silver, and then subliming of it; or by dissolving it in *Aqua fortis*, and precipitating it with the solution of Salt in fair water, and then washing it with warm water often to free it from the salts: or else by mingling the filings with sublimed Mercury, and in a Retort causing the Mercury to ascend, which will leave at bottom the Calx of Silver, fit for Jewels, &c.

XIII. To blanch Silver.

Take *Sal-Armoniack*, *Roch-Alum*, *Alum Pulmosum*, *Sal Gem*, *Argol*, *Roman Vitriol*, of each alike; powder and mix them, and dissolve them in fair water, in which boil the Silver so long, till you see it wonderful white.

XIV. To color Silver of a Gold color.

Take Salt-peter two pound, *Roch-Alum* five pound, mingle, and distil them, keeping the water for use. When you use it, melt the Silver, and quench it in the said water.

XV. To tinge Brass of a Gold color.

Dissolve burnt Brass in *Aqua fortis* (made of *Vitriol*, *Salt-peter*, *Alum*, *Verdigrise* and *Vermilion*) and then reduce it again, and it will be much of a gold color.

XVI. To make Brass through white.

Heat Brass red-hot, and quench it in water distilled from *Sal-Armoniack*, and Egg-shells ground together, and it will be very white.

XVII. To make Brass white otherwise.

Take Egg-shells and calcine them in a Crucible, and temper them with the whites of Eggs, let it stand so three weeks; heat the Brass red-hot, and put this upon it.

XVIII. To make Brass.

Take Copper three pounds, *Lapis Calaminaris* one pound in powder, melt them together the space of an hour, then put it out.

XIX. The way to color Brass white.

Dissolve a penny weight of Silver in *Aqua fortis*, putting it to the fire in a vessel, till the Silver turn to water; to which add as much powder of white Tartar as may drink up all the water, make it into balls, with which rub any Brass, and it will be white as Silver.

XX. To tinge Copper of a Gold color.

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Take Copper, *Lapis Calaminaris*, of each four drachms: Tutty two drachms: heat the Copper red-hot twice, quenching it in piss: doing the like by the *Lapis* and Tutty: take of the dissolved Copper half an ounce, adding to it Honey one ounce, boil them till the Honey look black and is dry that it may be poudered, which then beat with the *Lapis* and Tutty: boil them again, till the Copper is melted, and it is done.

XXI. *Another way to make Copper of a Gold color.*

Take the Gall of a Goat, Arlenick, of each a sufficient quantity, and distil them; then the Copper being bright being washed in this water, will turn into the color of Gold.

XXII. *Another way to do the same.*

Melt Copper, to which put a little *Zink* in filings, and the Copper will have a glorious golden color.

XXIII. *To make Copper of a white color.*

Take Sublimate, Sal-Armoniack, of each alike; boil them in Vinegar, in which quench the Copper being made red-hot; and it will be like Silver.

XXIV. *Another way to whiten Copper.*

Heat it red-hot divers times, and quench it in oyl of Tartar per deliquium, and it will be white.

XXV. *Another way to whiten Copper.*

Take Arsenick three ounces, Mercury Sublimate two ounces, Azure one ounce, mix them with good and pure grease like an ointment, with which anoint any Copper vessel, then put that vessel into another, and set it into a digestive heat for two months, after which cleanse it with a brush and water, and it is done.

XXVI. *Another way to whiten Copper.*

Take Arsenick calcined with Salt-peter, and Mercury Sublimate, which cast upon melted Copper, and it will be white like Silver.

XXVII. *To soften Copper.*

Melt burnt Brass with Borax in a Crucible, quench it in Linseed-Oyl, and then beat it gently on an Anvil; boil it again, and quench it in oyl as before, doing thus five or six times, till it is soft enough; and this will neatly unite with Gold, of which you may put in more by half than you can of other Brass.

XXVIII. *To tinge Iron with a Gold color.*

Lay in a Crucible plates of Iron and Brimstone *stratum super stratum*, cover and lute it well, and calcine in a furnace, then take them out and they will be brittle: put them into a pot with a large mouth, and put in sharp distilled vinegar, digesting till they wax red over a gentle heat: then decant the vinegar, and add new, thus doing till all the Iron be dissolved; evaporate the moisture in a glass Retort or *Vesica*, and cast the remaining powder on Silver, or other white Metal, and it will look like Gold.

XXIX. To make Iron or Silver of a Brass color.

Take Flowers of Brass, Vitriol, *Sal-Armoniack*, of each alike in fine powder; boil it half an hour in strong vinegar, take it from the fire, and put in Iron or Silver, covering the vessel till it be cold, and the Metal will be like to Brass, and fit to be gilded: or rub polished Iron with *Aqua fortis* in which filings of Brass are dissolved.

XXX. To tinge Iron into a Brass color.

Melt the Iron in a Crucible, casting upon it Sulphur *vire*, then cast it into small rods, and beat it into pieces (for it is very brittle) then in *Aqua fortis* dissolve it, and evaporate the *menstruum*, reducing the powder by a strong fire into a body again, and it will be good Brass.

XXXI. To whiten Iron.

First purge it, by heating it red-hot, and quenching it in a water made of Lye and Vinegar, boil'd with Salt and Alum, doing this so often till it is somewhat whitened. The fragments of the Iron beat in a mortar till the Salt is quite changed, and no blackness is left in the Liquor of it, and till the Iron is cleansed from its dross: then *Amalgamate* Lead and Quick-silver together, and reduce them into a powder: lay the prepared plates of Iron and this powder *stratum super stratum*, in a Crucible, cover it, and lute it all over very strongly, that the least fume may not come forth, and put it into the fire for a day; at length encrease the fire, so as it may melt the Iron (which will quickly be) and repeat this work till it is white enough: It is whitened also by melting with Lead, the *Marchasit* or fire-stone and Arsenick. If you mix a little Silver (with which it willingly unites) with it, it gives a wonderful whiteness, scarcely ever to be changed any more, by any art whatsoever.

XXXII. To keep Iron from Rusting.

Rub it over with vinegar mixt with Ceruse; or with the marrow

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marrow of a Hart ; if it be rusty, oyl of Tartar *per deliquium* will presently take it away and cleanse it.

XXXIII. To cleanse Brasse.

Take *Aqua fortis* and water of each alike, shake them together, and with a wollen rag dipt therein rub it over ; then presently rub it with an oily cloth ; Lastly, with a dry wollen cloth dipt in powder of *Lapis Calaminaris*, it will be clear and bright as when new.

XXXIV. To soften Iron.

Take Alum, Sal-Armoniack, Tartar, of each alike, put them into good Vinegar, and set them on the fire, heat the Iron, and quench it therein : or quench it four or five times in oyl, in which melted Lead hath been put six or seven times.

C H A P. XXVII.

The ways and manner of Gilding.

I. *To lay Gold on any thing.*

Take Red-lead ground fine, temper it with Linseed-oil : write with it, and lay Leaf-gold on it, let it dry, and polish it.

II. *To lay Gold on Glasse.*

Take Chalk and Red-lead, of each alike, grind them together, and temper them with Linseed-oil : lay it on, and when it is almost dry, lay Leaf-gold on it ; let it dry, then polish it.

III. *To gild Iron with a water.*

Take spring water three pound, Roch-Alum three ounces, Roman Vitriol, Orpiment, of Earth one ounce, Verdigrise twenty four grains, Sal-gem three ounces, boil all together, and when it begins to boil, put in Tartar and Bay-salt, of each half an ounce ; continue the boiling a good while, then take it from the fire, strike the Iron over therewith, dry it against the fire, and burnish it.

IV. *To lay Gold on Iron or other Metals.*

Take liquid Varnish one pound, Linseed Oyl and Tur-

pentine, of each one ounce ; mix them well together : strike this over any Metal, and afterwards lay on the Gold or Silver and when it is dry polish it.

V. To Gild Silver or Brass with Gold water.

Take Quick-silver two ounces, put it on the fire in a Crucible, and when it begins to smoak, put into it an Angel of fine Gold ; then take it off immediately, for the Gold will be presently dissolved : then if it be too thin, strain a part of the Quick-silver from it, through a piece of Fustian : this done, rub the Gold and Quick-silver upon Brass or Silver, and it will cleave unto it, then put the said Brass or Silver upon quick coals till it begin to smoak, then take it from the fire, and scratch it with a hair brush ; this do so long till all the Mercury is rubbed as clean off as may be, and the Gold appear of a faint yellow : which color heighten with Sal-Armoniack, Bole and Verdigrise ground together and tempered with water.

Where note, that before you gild your Metal, you must boil it with Tartar in Beer or water, then scratch it with a brass wire brush.

VI. Another water to gild Iron, Steel, Knives, Swords, and Armour with.

Take Fire-stone in powder, put it into a strong red Wine-vinegar for twenty four hours, boil it in a glazed pot, adding more Vinegar as it evaporates, or boils away : into this water dip your Iron, Steel, &c. and it will be black ; dry it, then polish it, and you will have a gold color underneath.

VII. Another way to gild Iron with.

Take Salt-peter, Roch-alum burnt, of each half an ounce, Sal-Armoniack an ounce, all being in fine powder, boil with strong Vinegar in a Copper Vessel ; with which wet the Iron &c. then lay on Leaf-gold.

VIII. Another way to gild Iron with.

Take Roch-Alum, and grind it with boys Urine, till it is well dissolved, with which anoint the Iron, heat it red-hot in a fire of wood coals, and it will be like Gold.

IX. To gild Books.

Take Bole-Armoniack four penny weight, Sugar-candy one penny weight, mix and grind them with glair of Eggs, then on a bound Book, (while in the press, after it hath been smeared with glair of Eggs, and is dried) smear the said composition, let it dry, then rub it well and polish it : then with fair water

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water wet the edges of the Book, and suddenly lay on the gold, pressing it down with Cotton gently, this done, let it dry, and then polish it exactly with a tooth.

X. Another way of gilding Iron.

Take water three pound, Alum two ounces, Sal-gem three ounces, Roman Vitriol, Orpiment of each one ounce, *flos Aeri* twenty four grains; boil all with Tartar and Salt as at the third Section.

XI. To make Iron of the color of Gold.

Take Linseed-oyl three ounces, Tartar two ounces, yolks of Eggs boiled hard and beaten two ounces, Aloes half an ounce, Saffron five grains, Turmerick two grains: boil all in an Earthen vessel, and with the oyl anoint Iron, and it will look like Gold. *If there be not Linseed-oyl enough, you may put in more.*

XII. A Golden liquor to color Iron, Wood, Glass, or Bones with.

Take a new laid Egg, through a hole at one end take out the white, and fill up the Egg with Quick-silver two parts, Sal-Armoniack finely powdered one part; mix them all together with a Wire or little stick: stop the hole with melted wax, over which put an half Egg-shell: digest in horse-dung for a month, and it will be a fine golden colored Liquor.

XIII. To gild Silk and Linnen.

Take Glew made of Parchment, lay it on the Linnen, or Silk, &c. gently, that it may not sink: then take Ceruse, Bole and Verdigrise, of each alike, mix and grind them upon a stone: then in a glazed vessel mix it with varnish, which let simmer over a small fire, then keep it for use.

XIV. Another of a pure Gold color.

Take juice of fresh Saffron, or (for want of it) Saffron ground, the best clear Orpiment of each alike: grind them with Goats gall or gall of a Pike (which is better) digest twenty eight days in horse-dung, and it is done.

XV. To gild on Wood or Stone.

Take Bole-Armoniack, oyl of Ben, of each a sufficient quantity; beat and grind them together: with this smear the wood or stone, and when it is almost dry, lay on the Leaf-gold, let it dry, then polish it.

XVI. To gild with Leaf-gold.

Take leaves of gold, and grind them with a few drops of honey

honey, to which add a little gum-water, and it will be excellent to write or paint with.

XVII. To gild Iron or Steel.

Take Tartar one ounce, Vermilion three ounces, Bole Armoniack, *Aqua-vita* of each two ounces, grind them together with Linseed oyl, and put thereto *Lapis Calaminaris* the quantity of a haffle-nut; and grind therewith in the end a few drops of varnish; take it off the stone, strain it thro' a Linnen Cloth, (for it must be as thick as honey) then strike it over Iron, or Steel, and let it dry: so lay on your Silver or Gold, and burnish it.

XVIII. To color Tin or Copper, of a Gold color.

Take Linseed Oil, set it on the fire, Scum it; and put in Amber, Aloes, Heparick, of each a like; stir them well together till it grows thick; take it off, cover it close; and set it in the Earth three days: when you use it, strike the Metal all over with it, with a Pencil, let it dry, and it will be of a Golden color.

XIX. To Silver any Metal.

Take strong *Aqua-fortis* in which dissolve fine Silver, to which put so much Tartar in fine powder as will make it into Paste: with which rub any Metal, and it will look like fine Silver.

XX. To gild, so as it shall rot out with any Water.

Take Oker calcined, Pumice stone, of each alike, Tartar a little: beat them with Linseed-Oil, and five or six drops of Varnish; strain all thro' a linnen cloth, and with this Liquor you may imitate Gilding.

XXI. To gild Paper.

Grind Bole Armoniack with Rain-water, and give one laying of it: being dry, take Glair of Eggs, and add to it a little Sugar Candy and Gum-water, which lay over the former, and upon this, (when in a fit dryness) lay your Leaf Silver, or Leaf Gold.

CHAP. XXVIII.

Of making White Colors, and Whitening Plaster Walls.

I. *A Fine White for Water Colors.*

Take filings of fine Silver, or Leaf-Silver, which dissolve in *Aqua-fortis* or *Sp. Nitri*, evaporate the *Aqua-fortis*, till it looks like Crystals in the bottom of the Glass: the other part of the *Aqua-fortis* decant, and wash the Silver in fair common water, five or six times, till it is freed from the *Aqua-fortis*, which you may know by tasting, then dry it for use. It must be used with Gum water, with a little water of Sugar-candy.

II. *An Incomparable fine white Lead.*

Take choice white Lead in Flakes, grind it well upon a Porphyry with Vinegar, and it will turn Blackish: then take a pot full of Water, in which wash your White Lead very well, let it settle, and pour off the Water: grind it again with Vinegar, and wash it in like manner again; repeat this work once or twice more, and you will have an Excellent White, as well for Water colors, as Painting in Oyl.

III. *To white wash plaster Walls.*

1. The wall is to be very well Plastered, with very fine Plaster and well layed, which being thoroughly dry, it is to be whitened with Lime Milk very clear as follows. 2. Before you lay on the Lime Milk, the Wall is to be very well wetted with water; for in this consists the secret, that the Whitning may not dry too fast, but rather very slowly, for so by drying Leisurely, the Lime will have time to fasten, so as it will neither whiten your Hands nor your Cloths. 3. If it is an old wall andt here is any dirt on it, or if it is free-stone and it is dirty, it ought to be scraped off. 4. Lime Milk is made of Lime which has been a long time slaked with a sufficient quantity of Water, stirring it till it makes a white Froth; the water is to be decanted after some days time, and the Lime dried, and then it is to be made into Lime Milk, some say with New Milk, but it is certain, that skimmed Milk will do, the Cream or Oily parts being taken off. 5. The Wall ought to be washt over three or four times, and then the last doing of it, ought
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to be with Milk of unslack't Lime, that the white may be the Glossier.

IV. *Another way to do the same.*

The Wall being fitted and prepared as aforesaid, the Lime Milk may be made either of well slaked Lime, or rather of Whiting; which done the first time the Wall is washt over, the Lime Milk ought to be thin, the next time somewhat thicker: the third time still thicker, putting in less of the Milk as you think fit; and the fourth time thickest of all, so will your Wall be purely White.

CHAP. XXIX.

Of Mezo-tinto: and the taking off, an old Print on White Paper.

I. **T**ake a well polished Copper plate, which make all over rough one way, with an engine particularly designed for this purpose; then cross it over with the Engine again; and if you see occasion, cross it over again the third time, till it be made all over rough alike, viz. so as if it were to be printed it would print black all over.

II. This done, take Charcole, black Chalk, or black Lead, to rub over the plate, and draw your designs with white Chalk upon the same, then take a sharp Stiff, and trace out the outlines of the design which you drew with the white Chalk.

III. Where you would have the light strike strongest, take a burnisher, and burnish that part of the Plate, as clean and smooth as it was when it was first polished.

IV. Where you would have the light fainter; there you must not polish it so much: and after this manner you must either increase or decrease the light in your design, making it either fainter, or stronger, as the necessity of your work shall require.

V. The shape or form of the Engin or Instrument is various and manifold, according to the fancy of the Artist; those that desire them, may have them of several persons in London, who profess and practise the Arts of Drawing, Etching, and Engraving.

VI. *To take an old Print off, on a piece of white Paper, and not spoil the Print.* Take Linseed Oyl and smear it all over the Print with a clean cloth.

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VII. Take a clean piece of Paper, lay it over the former Print; lay them both upon a polliſh'd Copper Plate, and paſs them thro' the Rouling Preſs; ſo will the white Paper receive the Reverse of the Print, or the Print backwards.

VIII. But to take the Oil out of the Print, you muſt waſh it with Oil of Spike or Turpentine: then being dried by or over the Fire, the Linſeed Oyl, with the Oyl of Spike will evaporate, and leave the Print as fair as it was at firſt.

C H A P. XXX.

Of making various ſorts of Ink.

I. *To make good black writing Ink.*

Take ponderous galls three ounces in powder, rain-water three pound, infuſe them in the Sun, or in a gentle heat two days: then take Roman Vitriol well colored (common may do better) and powdered, three Ounce: which put therein, and ſet all in the Sun for two days more; ſhake all together, to which add of good Gum-Arabick an ounce.

II. *To make red writing Ink.*

Take Raſpings of Brazil one ounce, white lead, Alom, of each two drachms, grind and mingle them, infuſe them in Urine one pound, with gum-Arabick two ſcruples, or a drachm at moſt.

III. *Another way to make red Ink.*

Take Wine-vinegar two pound, Raſpings of Braſil two ounces, Alom half an ounce, infuſe all ten days; then gently boil, to which add gum Arabick five drachms, diſſolve the Gum, ſtrain, and keep it for uſe. Note, two drachms of the Gum in ſome caſes may be enough.

IV. *To make green Ink to write with.*

Make fine Verdigrife into paſte with ſtrong Vinegar, and infuſion of green galls, in which a little Gum-Arabick hath been diſſolved, let it dry and when you would write with it, temper it with infuſion of green Galls aforeſaid.

V. *Another way to make green Ink to write with.*

Diſſolve

Dissolve Verdigrise in Vinegar, then strain it, and grind it with a little Honey, and mucilage of Gum Tragacanth, upon a porphyry stone.

VI. *To make another green Ink to write with.*

Boil Verdigrise with Argol in fair water; and then dissolve in it a little Gum-Arabick, and it will be good.

VII. *To make blew Ink to write with.*

Grind Indico with Honey mixed with glair of Eggs or glew-water; made of Ising-glass dissolved in water, and strained.

VIII. *To make red writing Ink of Vermilion.*

Grind Vermilion well upon a porphyry stone, with common water; dry it and put it into a glass vessel, to which put Urine, shake all together, let it settle, then pour off the Urine; and putting on more Urine, repeat this work eight or ten times, so will the Vermilion be well cleansed; to which put glair of Eggs to swim on it above a fingers breadth, stir them together, and settling abstract the glair: then put on more glair of Eggs, repeating the same work eight or ten times also, to take away the scent of the Urine: lastly, mix it with fresh glair, and keep it in a glass-vessel close stop'd for use. When you use it, mix it with water or vinegar.

IX. *To make Printers black Ink.*

This is made by mingling Lamp-black with liquid Varnish, or Linseed Oyl and boiling it a little, which you may make it thick at pleasure. You must make it moister in Winter, than in Summer; and note that the thicker Ink makes the fairer letter.

If it be too thick, you must put in more Linseed oil, or oil of Walnuts, so may you make it thicker or thinner at pleasure.

X. *To make red Printing Ink.*

Grind Vermilion very well with the aforesaid liquid Varnish or Linseed oyl.

XI. *To make green Prinzing Ink.*

Grind Spanish green with the said Varnish or Linseed oyl as aforesaid: And after the same manner, may you make Printers Blew, by grinding Azure with the said Linseed Oyl.

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XII. *To make white Ink to write upon black Paper.*

Dissolve Tin-Glass or Spelter in *Aqua fortis*, made of Nitre and Alum: precipitate with Oyl of Tartar; edulcorate perfectly with fair water, and dry it in a glass Bason: this powder mix with Gum water, and it will be a White, with which you may write upon Black paper: and with pure white Flowers of Antimony you may do the same.

XIII. *To make China Ink.*

Take Lamp-black purified eight Ounces: Indico, two Ounces: Ivory black one Ounce: Peach stone black half an Ounce: beat all together and make a Mass: make all into a body with water, in which a very little Gum Arabick has been dissolved: and so form them into long square Rods, or Tables.

XIV. *To make black writing Ink.*

Take Rain-water three pints: Nut Galls broken into little bits, three Ounces: digest in a Sand heat for a Week: Then take Vitriol or Copperas two Ounces, and dissolve it in Rain-Water a pint, by gentle boiling; adding in the Dissolution, a little Gum-Arabick: being dissolved, mix it with the Water and Galls; digest a Week in a sand heat, and keep the Clear for use.

XV. *A black Ink which Vanishes in twenty four hours time.*

Boil or Digest Nut Galls in gross powder in *Aqua fortis*: add to them Vitriol or Copperas, and a little Sal-Armoniack, and it is done: what is written with this will Vanish in twenty four hours.

XVI. *To make Indian Ink.*

Take Horse Beans, burn them till they are perfectly black, grind it to a subtile powder, and with a weak Gum-Arabick water, make it into a Paste, which form into long square Reds.

XVII. *To make another black writing Ink.*

Take White Wine two quarts: Logwood ground one pound: or shavings of it: boil till a quart is consumed: strain the Liquor from the Wood, and put into it Nut-Galls bruised, Eight Ounces: Pomegrante Peels four Ounces: mix and digest in a Sand heat for a Week, shaking it four or five times a day: then add to it Roman Vitriol or green Copperas four Ounces: digest two days more; after which
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add Gum Arabick four ounces : digest twenty four hours, and strain all out into another Vessel, and keep the Ink for use. Note, that these faeces will serve again for the same quantity of Liquor, or Logwood Infusion. 2. That the Pomegranate Peels are put in to make the Ink shine. 3. That Rain-water seems to be better for this purpose than White Wine. 4. That probably the quantity of the Gum-Arabick is too much.

XVIII. *Another very good black writing Ink.*

Take Thames or Rain Water a Gallon, Nut-Galls crackt only into small bits one pound : Copperas four Ounces : Infuse all in a Gentle Sand heat, for six Weeks, shaking the bottle four or five times every day : then dissolve in it Gum-Arabick eight Ounces, (I fear the Gum is too much, and will make the Ink too thick :) and let it stand upon the faeces for use.

XIX. *Another black writing Ink.*

Take Rain Water a Gallon : Nut-Galls only Crackt into bits a pound ; Copperas eight Ounces : Alum eight Ounces : Infuse all in a Gentle Sand heat for a Month : add Gum-Arabick eight Ounces : which dissolve in it, and keep the mixture for use.

XX. *Another writing Ink.*

Take strong stale Beer a Gallon, (or White or Red-Wine the same quantity ;) Old Nails six or eight pounds : digest in a Cold place for eight ten or twelve Months : then decant of the clear Tincture. Take Catechu in fine powder six ounces : common Brandy a pint ; mix and in a sand heat make a strong Tincture which decant ; mix this with the former Tincture of and it becomes a black Ink.

XXI. *Another very excellent black writing Ink.*

Take Mr. Youngs Water at Islington, or Water in which a large quantity of old Nails has lain for a Year or two, a Gallon, Nut-Galls broken into little bits a pound ; Common Vitriol, or Copperas four Ounces : Infuse all together for a Month, stirring or shaking the Vessel very well five or six times every day, then add Gum-Arabick cut into bits two Ounces : dissolve and keep it continually stirring once or twice every day. Note, when you use it, you may put in a little white Sugar Candy, and dissolve it, so will your writing shine ; but you ought not to put it in but as you have occasion to use it, for after three or four days, it spoils the Ink.

POLYGRAPHICES

LIBER QUARTUS.

*Containing the Original, Advancement
and Perfection of the Art of Painting :
Particularly exemplified in the various
Paintings of the Ancients.*

CHAP. I.

Of the Original of these Arts.

I. **T**HE Original of the Art of Painting was taken from the Forms of things which do appear ; expressing the same (as Isidorus Pelusiota saith) with proper Colours, imitating the Life, either hollow or swelling, dark or light, hard or soft, rough or smooth, new or old.

Of such things (amongst Vegetables) Flowers yield the greatest variety : of Animals, Man : of things Inanimate, Landships, &c. For this matter of Imitation was presented in the chief things only, for who should learn to imitate all things in Nature ? the greater being attained, the lesser will follow of themselves ; if any shall attempt so great a burthen, two inconveniences, saith Quintilian, will necessarily follow, to wit, *Always to say too much, and yet never to say all.*

II. And this Imitation of things seen with the Eye, was much helped by the Idea's of things conceived in the mind, from the continual motion of the Imagination.

Wherefore as *Quintilian* saith (*lib. 10. cap. 3. of his Institutions of Oratory*) "We shall do well to accustom our minds to such a stedfast constancy of conceiving, as to overcome all other Impediments by the earnestness of our Intention, for if we do altogether bend this Intention upon things conceived, our mind need never take notice of any thing which the Eye sees, or the Ear hears. And therefore those which would profit much, must take care and pains to furnish their minds with all sorts of useful Images and Idea's. This treasury of the mind (saith *Cassiodorus cap. 12. de Anima*) is not over-loaden in haste: if it be once furnished, the Artist shall find upon any sudden occasion, all things necessary, ready at hand; whereas those which are unprovided shall be to seek. It is like to the Analytical Furniture in *Algebra*, without the knowledge of which, no notable thing can be performed. Now although the Imagination may be easily moved, yet this same excellency is not attained in an instant: And without the ability of expressing of the conceived Images, all the exercise of the fancy is worth nothing.

III. These Forms and Idea's were not singly considered, but complicatedly.

For whereas Nature scarcely ever represents any one thing perfect in beauty, (in all its parts) lest it should be said, that she had nothing more to distribute to others: so Artists of old chose out many Patterns, which were absolutely perfect in some of their parts, that by designing each part after that Pattern, which was perfect therein, they might at last present something perfect in the whole. And so when *Zenxis* intended an exquisite Pattern of a beautiful Woman, he sought not for this perfection in one particular body, but chose five of the most well-favoured Virgins, that he might find in them that perfect beauty, which (as *Lucian* saith) must of necessity be but one. And *Maximus Tyrinus* saith, you shall not find in hast a body so accurately exact, as to compare it with the beauty of a Statue. And *Proclus* saith, if you take a Man brought forth by Nature, and another made by Art of Carving, that by Nature shall not seem the statelier, because Art doth many things more exactly: to which *Ovid* assents, when that he saith, that *Pygmalion* did Carve the Snow-white Image of Ivory

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ry, with such a happy dexterity, that it was altogether impossible that such a Woman should be Born.

IV. *From this manner of Imitation did arise the Skill of Designing; from whence sprang the Arts of Painting, Limning, Washing, Casting, and all others of that kind.*

These Arts in their infancy, were so mean, that the first Artist was forced (as *Ælianus* saith lib. 10. cap. 10. of his *History*) in Painting to write, This is an Ox, this a Horse, this a Dog: but as *Tully* saith, (*in libro de claris oratoribus*) there is nothing both invented and finished at a time. And *Arnobius* in *libro secundo adversus Gentes* saith, "The Arts are not together with our minds, brought forth out of the heavenly places; but are all found out here on Earth, and in process of time, softened, forged, and beautified, by a continual meditation: our poor and needy Life, perceiving some casual things to fall out prosperously, whilest it doth imitate, attempt, try, slip, reform, and change, hath out of the same assiduous reprehension made up some small pieces of Arts, the which it hath afterwards by study brought to some perfection.

V. *The Persons who were the first Inventers of these Arts are scarcely known, (because daily new Inventions were added) but those famous Persons who either strove to bring them to perfection, or add to what was already invented, or otherwise were famous in any one particular thing, History has in part informed us of.*

The famous *Pausias* was the first that attempted to bring the Art of Painting to perfection. *Apelles* was the first that undertook the expressing of invisible things, as Thunder, Lightning, and the like; the which consideration of these almost Impossibilities, made *Theophylactus Simocatus* (in *Epist.* 37.) say, that Painters undertake to express such things, as Nature is not able to do: and the same *Apelles* had a certain Invention and Grace, proper to himself alone, to which never any other Artificer ever attained. And although *Zenxis*, *Apelles*, *Aglaophon*, did none of them seem to lack any thing of Art, yet they differed very much, and had each of them some peculiar Excellency, of which neither of the other two could boast. Here is but one Art of Casting, in which *Myron*, *Polyclerus*, *Lysippus* have been excellent, yet did one very much differ from another: *Zenxis* did surpass all other

Artizans in Painting Womens Bodies: *Lyfippus* is most excellent in fine and subtile Workmanship: *Polyclethus* made excellent Statues upon one Leg: *Samius* did excel in conceiving of Visions and Phantasies: *Dionysius* in Painting of Men only: *Polignotus* most rarely expressed the Affections and Passions of Men: *Antimochus* made noble Women: *Nicias* excellent in Painting of Women, but most excellent in four-footed Creatures, chiefly Dogs: *Calamis* made Chariots, with two or four Horses; the Horses were so excellent and exact, that there was no place left for Emulation: *Euphranor*, the first and most excellent in expressing the dignity, and marks of Heroical Persons; *Arestodemus* Painted Wrestlers: *Serapion* was most excellent in Scenes: *Pyreicus* (inferiour in the Art of Painting to none) Painted nothing but Coblers and Barbers: *Lutio* the first and most excellent in Painting Landskips: *Apollodorus*, *Asclepiodorus* *Androbulus*, *Aleuas*, were the only Painters of Philosophers, &c.

VI. Another Reason of the Invention hereof, was from the moving of the Passions.

For as *Simonides* saith, (comparing Painting with Poesy) Picture is a silent Poesy, and Poesy is a speaking Picture: Upon the occasion of these words, *Plutarch* saith, *The things represented by Painters, as if they were as yet doing, are propounded by Orators as done already: Painters express in Colours and Lines, what Poets do in Words; the one doth that with the Pencil, which the other doth with the Pen.* When *Latinus Pacatus* had made a full Description of the miserable end of the wicked *Maximus*, he calls upon all the Painters to assist him: Bring hither, bring hither you pious Poets, (saith he) the whole care and study of your tedious nights: ye Artificers also, despise the vulgar Argument of ancient Fables; these, these things deserve better to be drawn by your cunning Hands: let the Market-places and Temples be filled with such Spectacles; work them out in Ivory; let them live in Colours; let them stand in Brass; let them exceed the price of precious Stones. It doth concern the security of all Ages, that such things might be seen to have been done, if by chance, any one filled with wicked desires, might drink in Innocency by his Eyes, when he shall see the (horrid and deplorable) Monuments of these our times. And *Gregory Nyssen*, upon the Sacrificing of *Isaac* saith,

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saith, I often saw in a Picture the Image of this Fact, upon which I could not look without Tears; so lively did Art put the History before my Eyes.

VII. *The Egyptians were the first Inventers of Painting: The Greeks brought it (out of its rudeness) to proportion: The Romans adorned it with Colours: The Germans (following them) made their works more durable by Painting in Oil: of whom the English, Dutch, Italian and French are become Imitators.*

It is reported, that the Grecians were the first Painters, and that their Colours were (in the infancy thereof) only White and Black: but it appears more with reason and truth, that the Invention thereof should be ascribed to the Egyptians, who (before the Invention of Letters) signified their conceptions by Hieroglyphicks of Figures, Cyphers, Characters and Pictures of divers things, as Birds, Beasts, Insects, Fishes, Trees, Plants, and the like, which by Tradition they transfer'd to their Children; so they made the Falcon to signifie Diligence, Strength and Swiftnes: the Bee a King; its Honey, Mildness; its Sting, Justice: a Serpent, (tail in mouth) the Revolution of the Year: the Eagle, Envy: the Earth, a labouring Beast: a Hare, Hearing, &c. Now, our bare learning to imitate, is not enough; it is requisite, that since we are not first in Invention, we should study rather to outgo than to follow. If it were unlawful (saith Quintilian) to add any thing to things invented, or to find out better things, our continual labour would be good for nothing; for it is certain that Phydias and Apelles have brought many things to light, which their Predecessors knew nothing of. Apelles did all things with compleatness: Zeuxis with an inestimable grace: Protogenes with an indefatigable diligence: Timanthes with a great deal of subtilty and curiosity: Nicophanes with a stately magnificence. Now, to attain to these kind of Excellencies, it is necessary to have recourse to variety of great Masters, that something out of the one, and something out of the other, may be as so many Ornaments to adorn our Works; and as so many steps to lead us on to the door of perfection.

VIII. *About the time of Philip King of Macedon, this Art began to flourish: growing into great estimation in the days of Alexander and his Successors: from thence through all the series of time even to this day, it hath received by de-*

grees, such wonderful advancements that it may be now said, it is arrived at perfection.

For without doubt there is a perfection of Art to be attained, and it is as possible that I, or thou, or he, may as well attain it, as any body else, if we resolve to strive, and take pains, without fainting, or fear of despair. And since the Art of Painting is (as *Socrates* saith) the resemblance of visible things, the Artist ought to beware that he abuses not the liberty of his Imagination, in the Shapes of monstrous and prodigious Images of things not known in Nature; but as a true lover of Art, prefer a plain and honest work, (agreeing with Nature) before any phantastical and conceited Device whatsoever.

IX. *Lastly, That from Time, Form, Magnitude, Number, Proportion, Colour, Motion, Rest, Situation, Similitude, Distance, Imagination and Light, In a single and complicate consideration, this Art hath its essence or being, and at last had by the help of industrious and unwearied Minds, its Original Production and Manifestation.*

Light is that only thing, without which all those other things from which this Art springs, would be useless; without which the Art it self cannot be. "It is (as *Sanderson* saith) the Heavens Off-spring, the eldest Daughter of God, *fiat lux*, the first days Creation: it twinkles in a Star, blazes in a Comet; dawns in a Jewel, dissembles in a Glow-worm; contracts it self in a Spark, rages in a Flame, is pale in a Candle, and dyes in a Coal. By it the Sight hath being, and the Imagination life, which comprehends the Universality of all things without space of place: the whole Heavens in their vast and full extent, enter at once through the Apple of the Eye, without any straitness of passage: the Sight is a Sense, which comprehends that which no other Sense is capable of; it judgeth and distinguisheth between two contraries in an instant, it considers the excellency and beauty of every Object: the spangled Canopy of Heaven by night, the wandering Clouds by day, the wonderful Form of the Rain-bow, the glorious matutine appearance of *Phœbus*; the meridional Exaltation, the golden Rays which surround him, the mutability of his Shadows, his respective Setting: the lofty tops of Mountains, unaccessible and ridgy Rocks, profound Valleys, large Plains, which

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Chap. 2. Farther Progress of these Arts. 307

“ which seem to meet Heaven, green Trees, and pleasant Groves, delightful Hills, sweet and flowery Meadows, pleasant Streams, springing Fountains, flowing Rivers, stately Cities, famous Towers, large Bridges, magnificent Buildings, fruitful Orchards and Gardens, shapes of living Creatures, from the Elephant to the Ant, from the Eagle to the Wren, and from the Whale to the Shrimp, the wonderful forms of Insects, the marching of Armies, the besieging and storming of Garisons, the Insolencies of rude People, and flight of the Distressed, the desolation and depopulation of Kingdoms and Countries, the sailing of Ships, terrible Sea-fights, great beauty of Colours, together with thousands of other things, all which it digests, and marshals in ample Order, that when occasion may be, it may exert its store, for the benefit, advantage, advancement, and perfection of Art.

C H A P. II.

Of the farther Progress of these Arts.

I. *AS God Almighty (who is the Author of all Wisdom) was the first Institutor hereof, so also was he the Promulgator, by whom these Arts have made Progression in the World.*

Certainly, saith *Philostatus*, Picture is an Invention of the Gods, as well for the painted Faces of the Meadows adorned with Flowers, according to the several Seasons of the year; as for those things which appear in the Sky. What wonderful Eloquence is this! that in so few words, this Philosopher should clear so great a Point. But what saith *Gregorius Nyssenus*? Man, saith he, is an Earthen Statue: and *Suidas in Oratione prima de Beatitudinibus*, speaking of *Adam*, saith, This was the first Statue, the Image framed by God, after which all the Art of Carving used by Men received directions: *Lot's* Wife was another, turned into a durable Pillar of Salt, of whom *Prudentius* (in *Harmartigenia*) saith, she waxed stiff, being changed into a more brittle substance, she

standeth Metamorphosed into Stone, apt to be melted, keeping her old posture in that Salt-stone Image; her Comeliness, her Ornaments, her Forehead, her Eyes, her Hair, her Face also (looking backward) with her Chin gently turned, do retain the unchangeable Monuments of her antient Offence; and though she melteth away continually in Salt Sweat: yet doth the compleatness of her Shape suffer no loss by that fluidity; whole droves of Beasts cannot impair that savoury Stone so much, but still there is Liquor enough to lick, by which perpetual loss, the wasted Skin is ever renewed. To these let us add the Pattern of the *Tabernacle* shewed unto *Moses* upon Mount *Sinai*: the *Brazen Serpent* made by the express command of God: The *Pattern* of the *Temple* (which *David* gave unto *Solomon*) after the form which God made with his own Hand: *Ezekiel's* Portraict of *Jerusalem*, with its formal *Siege* upon a Tile, by express command from God also: The *Brazen Statue* of our Lord *Jesus Christ* erected by the Woman healed of the bloody Issue, as is mentioned by *Photius*, and *Asterius* Bishop of *Amasæ*, and other Ecclesiastick Writers.

II. By virtue of this Divine Hand it was, that many Artists of old attained to a certain kind of perfection in these Arts.

We will only refer the proof of this to the Examples in the 31 of *Exodus*, of *Bezaleel* and *Aholiab*; of whom God himself witnesseth, that he called them by Name, to make the *Tabernacle*; and filled them with his Spirit, not only to devise curious Works in Gold, in Silver, in Brass, and in Silk; but also gave them Skill to teach others the same.

III. Nature also hath not been idle, but hath acted a Master-piece herein.

To pass by the glory of Flowers, the excellent comeliness of Beasts, (as in the spots of *Leopards*, tails of *Peacocks*, and the like) I will only remark the same of a Gem, which *Pyrrhus* (who made War with the *Romans*) had, of which *Pliny* in lib. 34. cap. 1. of his natural History, reports, that it being an *Agath*, had the *nine Muses*, and *Apollo* holding of a Lute depicted therein; the spots not by Art, but by Nature, being so spread over the Stone,

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Chap. 2. Farther Progreſs of theſe Arts. 309

Stone, that each Muſe had her peculiar mark. See *Gaſſerel*, cap 5.

IV. *The care of Parents in the Education of their Children, was another reaſon of the progreſs hereof.*

The Grecians, ſaith *Ariſtotle* in cap. 3. lib. 8. of his *Politicks*, did teach their Children the Art of Painting: and *Plutarch* ſaith, that *Paulus Emilius* had Sculptors and Painters amongſt the Maſters of his Children, as well as Philoſophers and Rhetoricians; and *Pliny* ſaith, that by the Authority of *Pamphilus*, this Art hath been ranked among the liberal Sciences, and that only Free-born Children ſhould learn it. And *Galen* enumerating ſeveral Arts, as *Phyſick*, *Rhetorick*, *Muſick*, *Geometry*, *Arithmetick*, *Logick*, *Grammar*, and knowledge of *Law*; add unto theſe, ſaith he, *Carving* and *Painting*. And as the Grecians were the firſt, that taught their Children theſe Arts, ſo alſo they provided betimes for them choice Maſters.

V. *Theſe Maſters by their carefulneſs and vigilancy, not deceiving thoſe that put their truſt in them, became main Pillars of theſe Arts, and propagated them to Poſterity; which by the addition of conſiderable Gifts and Rewards had an honourable Eſteem in the World.*

Their care was manifeſt in laying down ſolid Principles of Art; of which *Quintilian* in cap. 2. lib. 12. of his *Inſtitutions of Oratory*, ſaith, though Virtue may borrow ſome forward fits of Nature, yet ſhe muſt attain to perfection by Doctrine. Their vigilancy was ſeen in watching, to apprehend their Scholars Capacities, that they might ſuit themſelves accordingly; as in *Tully's* Inſtance of *Iſocrates*, a ſingular good Teacher, who was wont to apply the Spur to *Ephorus*, but the Bridle to *Theopompus*; and their Reward was eminent, as *Pliny* noted in *Pamphilus* his School, out of which *Apelles* and many other excellent Painters came, who taught no body under a Talent, (which is about 175 Pounds Sterling) thereby the better to maintain the Authority of Art.

VI. *Their Practice exactly agreed with their Precepts.*

As with *Seneca*, that Labour is not loſt, whoſe Experiments agree with Precepts; ſo with *Quintilian* thoſe
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Examples may stand for Testimonies: and it was the Practice of Painters of old, as *Galen* witnesseth concerning *Polycletus*, who hath not only set down in Writing the accurate Precepts of Art; but also that he made a Statue according to the Rules of Art contained in those Precepts.

VII. *These Precepts which they taught their Scholars, they delivered in Writing, that they might ever accompany them wheresoever they went.*

Apelles gave the Precepts of this Art to his Disciple *Persens* in Writing, as *Polycletus* did to his: besides innumerable others now in being, too tedious here to recite. The like did these following, *Adams*, *Mylenus*, *Alcetas*, *Alexis* the Poet, *Anasimenes*, *Antigonus*, *Aristodemus*, *Carius*, *Artimon*, *Callixenus*, *Christodorus*, *Democritus*, *Ephesus*, *Duris*, *Eupherion*, *Euphranor*, *Isthmius*, *Hegesander*, *Delphicus*, *Hippias Eleus*, *Hypsicrates*, *Iamblicus*, *Juba Rex Mauritaniæ*, *Malchus*, *Bizantius*, *Melanthius*, *Menachmus*, *Menetor*, *Pamphilus*, *Polemon*, *Porphyrius*, *Praxiteles*, *Protogenes*; *Theophanes*, *Xenocrates*, and many others, the chief of whose Works are now lost.

VIII. *As Arts came now into Estimation, so at length Laws were established for their preservation; and Punishments for their Prevarication.*

The beginning of these Laws was first at *Argos*, *Ephesus*, *Thebes* and *Athens*, as also in *Egypt*, where a Workman (saith *Diodorus Siculus*) is fearfully punished, if he undertake any Charge in the Commonwealth, or meddle with any Trade but his own: the which Law, saith *Herodotus*, the *Lacedæmonians* did also approve of. By means of which Laws it was, that the Artists of those Nations attained to such a perfection of Art, as we shall hereafter relate.

IX. *The fervent desire and love of Emulation to excel others; the commendable Simplicity of Art; together with the content and satisfaction of doing something well, gave a large progress towards the advance of Art.*

It was nobly said of *Scipio Africanus*, that every magnanimous Spirit compares himself, not only with them that are now alive; but also with the famous Men of all Ages; whereby it appears, that great Wits are always by the Sting of Emulation, driven forwards to great Matters; but he that by too much love of his own Works,

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Chap. 2. *Farther Proprefs of these Arts.* 311

compares himself with no body, must needs attribute much to his own Conceits. Dost thou desire the glory of Swiftneſs, ſaith *Martial*, (*in Epigr. 36. lib. 12.*) ſtrive to out-go the *Tyger*, and the light *Oſtrich*; it is no glory at all to out-run *Aſſes*. This *Emulation* is the force of great Wits, whereby our Imitation is provoked ſometimes by Envy, and ſometimes by Admiration, whereby it falls out, that the thing we earneſtly ſeek after, is ſoon brought to ſome height of perfection; which perfection conſiſts in exact Imitation, according to the Simplicity of Art, and not in gaudy Appearances, which adorns the Shadows much more than ever Nature adorned the Subſtance. This Imitation of the Life gave the *Artizan* Fame; which Fame quickened his aſpiring Thoughts, adding more Fuel to the Flames, till ſuch time as he brought forth a moſt abſolute Work, whereby he conceived a joy, content and ſatisfaction, as durable as the Work it ſelf, upon which he now conceived himſelf a happy Man, and through a juſt aſſiance of his Virtues, knows himſelf to be liſted up above the reach of Envy, where he ſtands ſecure of his Fame, enjoying in this Life (as if he were now Conſecrated unto Eternity) the Veneration that is like to follow him after his Death; thus an honeſt *Emulation* and *Confidence*, bringing forth Works of general Applauſe, procureth unto its Author an ever-laſting Glory. Now, what a comfortable thing is this, to have a fore-feeling of what we ſhall afterwards attain to!

X. *Another reaſon of the Augmentation of theſe Arts, was the manifold uſes thereof among Men, either for good or evil Purpoſes.*

As in natural Sciences, where words come ſhort, a little Picture giveth us the knowledge of Beaſts, Birds, Fiſhes, and other Forms, as well Inanimate as Animate: In the *Tacticks*, how ſhould a General know how to ſet his Men in array, unleſs he try the caſe by Deſign or Delineation? ſo in *Architecture* to pourtray Platforms after any faſhion, and to work out the Patterns of high and mighty Buildings in a little Wax, keeping in ſo ſmall an Example, the exact proportion of the greater Structure: in *Geometry* the exactneſs of Lines, Angles, Surfaces and Solids: in *Botanologia* the exact ſhapes of Herbs, Plants and Trees: in *Zoologia* the ſhapes of all living

living Creatures: in *Anthropologia*, the exact Description of all the parts of Man's Body inward and outward: in *Chymia*, the forms of all Chymical Vessels and Operations: in *the Lives of Illustrious Men and Princes*, to express their Forms and Shapes to the Life, that Age might not prevail against them, deserving thereby (as *Varro* saith) the Envy of the Gods themselves: in *Geography*, to describe in small Maps Kingdoms, Countries, and Cities, yea, the whole World: in *Policy*, as *Michal* in saving her Husband *David*, *Ptolomeus* in the Image of *Alexander*, which he willingly let *Perdiccas* catch from him, supposing it to have been the Body it self, thereby avoiding much Blood-shed: *Cyrus* his wooden *Persians* in the Siege of *Sardis*, by which the Towns-men being frightened, yielded the City: *Epaminondas* at *Thebes*, by the Image of *Pallas* did Wonders: *Amasis* King of *Egypt*, his golden Image made of the Basins, in which his Feet used to be Washed, which the *Egyptians* religiously Worshipped, whereby he brought them to affect him, being now a King, who was of an ignoble and base Parentage; the wooden *Elephants* of *Perses*, King of *Macedonia*, with which he wonted his Horses, that they might not be frightened in time of Battel. The Ornaments of Temples, Market-places and Galleries, places both publick and private. *Julius Caesar's* Image in Wax, hideous to look to, for 23 gaping Wounds he received, did mightily stir up the *Romans* to revenge his Death. Worthy Men, which had deserved well of the World, had their Memories conserved with their Images; by which all those that aspire to Goodness, and to follow their steps, are likewise filled with Hope. The *Athenians* have erected unto *Æsop* a most goodly Statue, saith *Phædrus*, and have set a contemptible Slave upon an everlasting Base, that all might understand, how the way of Honour lieth open to every one, and that Glory likewise doth not so much follow the Condition of our Birth as the Virtues of our Life. *Berosus* excelled in *Astrology*, wherefore the *Athenians*, for his Divine Prognostications, erected him a Statue with a golden Tongue, set up in their publick Schools, as *Pliny* saith, lib. 7. cap. 37. Publick Libraries were furnished also with Golden, Silver, and Brasse Images of such, whose Immortal Souls did speak in those places. The Provocations of Vices have also augmented the Art; it hath been plea-

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Chap. 2. *Farther Progress of these Arts.* 313

pleasing to Engrave wanton Lusts upon their Cups; and to drink in *Ribauldry* and *Abominations*, as *Pliny* saith in the Proem of his 33. Book.

XI. *The use therefore of these Arts extending it self so universally to all Intents both in War and Peace, it came to pass that Artificers were honoured by all sorts of Men, which themselves perceiving, did still endeavour to encrease this enjoyed favour, by a daily advance of their Skill.*

By Kings they were Honoured; for *Demetrius*, whilest at the Siege of *Rhodes*, came to *Protogenes*, leaving the hope of his Victory to behold an Artificer. *Alexander the Great* came also to *Apelles* his Shop, often accompanied with many Princes. It was his will that none but *Polycletus* alone should Cast his Statue in *Brass*, that none but *Apelles* alone should Paint him in Colours, that none but *Pyrgoteles* alone should Engrave him. The Estimation of the Artists were also understood from the Esteem and high Rates their Works were prized at: a Picture of *Bularchus*, a Painter, was valued at its weight in Gold by *Candaules* King of *Lydia*: *Aristides* was so singular in his Art, that it is reported of King *Attalus*, that he gave an hundred Talents (which is about 17500 Pounds Sterling) for one of his Pictures. As much had *Polycletus* for one of his. *Apelles* had for Painting the Picture of *Alexander the Great* 3500 Pounds, given him in Golden Coin. *Cesar* paid to *Timomachus* 80 Talents (about 14000 Pounds Sterling) for the Pictures of *Ajax* and *Medea*. Many more Examples we might produce, but these may suffice; at length no Price was thought equal to their worth: so *Nicias*, rather than he would Sell his Picture, called *Necyia* to King *Attalus*, who proffered him 60 Talents, (worth near 11000 Pounds Sterling) bestowed it as a Present upon his Country.

XII. *Art meeting with such Successes, created a boldness in Artificers, to attempt even the greatest Matters.*

The great Colosses of the Antients may serve here for an Example; *Zeuxes*, above all the rest, hath been admired for his Boldness: *Euphranor* also excelled *Parrhasius* in this kind, in that the *Thesens* of the one so infinitely excelled the *Thesens* of the other. So great an Excellency of Spirit arose in the old Artificers, as not to be daunted by the Authority of those, who were like to censure their Works: it was a great mark they aimed at, to avoid a
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preposterous Shame or Fear. And this they accomplished by taking care, not only to give them content, who must of necessity be contented with the Work, but also that they might seem admirable unto them, which may judge freely without controul. So they heeded to do well in the Opinion of accurate and judicious Spectators, rather than to do that which liked themselves. And therefore whatsoever is dedicated unto Posterity, and to remain as an Example for others, had need be well done, Neat, Polished, and made according to the true Rule and Law of Art, forasmuch as it is likely to come into the hands of skilful Artificers, judicious Censurers, and such as make a narrow scrutiny into every defect. But as it is impossible to attain to an Excellency, or height of any thing without a beginning, so do the first things in going on of the Work, seem to be the least; the height of Arts, as of Trees, delighteth us very much, so do not the Roots; yet can there be no height without the Roots. And therefore we shall find, that a frequent and continual Exercise, as it is most laborious, so it is most profitable; *seeing Nature doth begin, hope of Profit doth advance, and Exercise doth accomplish the thing sought after.* In sum, by doing quickly, we shall never learn to do well; but by doing well, it is very likely we may learn to do quickly. To this speedy and well doing there belongeth three things, *viz.* To add, to detract, and to change. To add or detract, requireth less Labour and Judgment; but to depress those things that swell, to raise those things that sink, to tye close those things which are scattered, to digest things that are without order, to compose things that are different, to restrain things that are insolent, requireth double pains: for those things may be condemned, which once did please, to make way for Inventions not yet thought of. Now without doubt, the best way for Emendation, is to lay by the Design for a time, till it seem unto us as new, or anothers Inventon; lest our own, like new Births, please us too much.

XIII. Lastly, *That which gave the greatest, and as it were, the last step towards the augmentation of Art, was that free liberty which Artizans gave every one, to censure, to find fault with their Works, and to mark their Defects.*

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Chap. 2. Farther Progreſs of theſe Arts. 315

ſelves to be Wiſe already. When *Phydias* made *Jupiter* for the *Eleans*, and ſhewed it, he ſtood behind the Door liſtning what was commended, and what diſcommended in his Work: one found fault with the groſſeneſs of his Noſe, another with the length of his Face, a third had ſomething elſe to ſay: now, when all the Spectators were gone, he retired himſelf again to mend the Work, according to what was liked of the greater part; for he did not think the Advice of ſuch a Multitude to be a ſmall matter, judging that ſo many ſaw many things better than he alone, though he could not but remember himſelf to be *Phydias*. But yet Artificers did not from hence admit their Judgments generally in every thing, but they followed their Directions only in ſuch things as did belong to their Profeſſion. As when *Apelles* made a Work, he expoſed it in a place where all that paſſed by might ſee it; hiding himſelf in the mean time behind the Picture, to hear what faults were marked in his Works, preferring the common People before his own Judgment. And he is reported to have mended his Work, upon the Censure of a Shoo-maker, who blaming him for having made fewer Latchets in the inſide of one of the Pantoffles, than of the other: the Shoo-maker finding the Work the next day mended according to his Advice, grew proud, and began to find fault with the Leg alſo; whereupon *Apelles* could not contain himſelf any longer, but looking forth from behind the Picture, ſaid, *Ne ſutor ultra crepidam*, he bid the Shoo-maker not go beyond his Laſt; from whence at laſt came that Proverb. He is the beſt Man that can adviſe himſelf what is fit to be done; and he is next in goodneſs, that is content to receive good Advice: but he that can neither adviſe himſelf, nor will be directed by the Advice of others, is of a very ill Nature.

C H A P. III.

Of the Consummation or Perfection of the Art of Painting.

I. *AS Invention gave way to the advancement of Art, so the advancement of the same made way for its Perfection.*

The Invention arose from the appearance of things natural, conceived in *Idea's*, as we have abundantly signified (*in the first Chapter of this Book*) the Advance from the bringing of those *Idea's* to light through practice (*by Chap. 2.*) from whence arose things *very excellent for Greatness, very good for their Usefulness, choice for their Novelty, and singular for their kinds.*

II. *Ease of Invention, plenty of Matter, and nearness of Work, were steps by which Art was Consummated. For ease of Invention gave Encouragement, plenty of Matter gave Formation, and Neatness gave Delight; all which so conspired together, to put so much of Emulation into the Artificer, to undertake or endeavour to do those things, which in their kind might never after be exceeded: this indeed was their aim of old, which although the Antients of this Art could never attain unto, yet did they make such way, that some of their Followers have done those things, which never any after them could ever mend, nor themselves scarcely come near. Ease of Invention springs out of a great and well rooted fulness of Learning; by being conversant in all sorts of Studies, having familiarity with Antiquities; the knowledge of innumerable Historical and Poetical Narrations, together with a thorough Acquaintance with all such Motions and *Idea's* of the Mind, as are naturally incident unto Men: for the whole force of this Art doth principally consist in these things, nothing bearing a greater sway in the manifold varieties of *Painting*.*

III. *It was the Opinion of Pamphilus (the Master of Apelles) that without the knowledge of Arithmetick, Geometry, and the Opticks, this Art could not be brought to Perfection.*

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Chap. 3. *The Perfection of Painting.* 317

The Examples of *Phidias* and *Alcámenes* is pertinently brought here: The *Athenians* intending to set up the Image of *Minerva* upon a high Pillar, employed those two Workmen, purposing to chuse the better of the two; *Alcámenes* (having no Skill in *Geometry* nor the *Opticks*) made her wonderful Fair to the Eye of them that saw her near. *Phidias* contrariwise (being Skilful in all Arts, chiefly the *Opticks*) considering that the whole Shape would change according to the height of the place, made her Lips wide open, her Nose somewhat out of order, and all the rest accordingly, by a kind of Refupination: the two Images being brought to view, *Phidias* was in great danger to have been Stoned by the Multitude, until at length the Statues were set up; where the sweet and excellent stroaks of *Alcámenes* were drowned, and the disfigured distorted hard-favouredness of *Phidias* his Work vanished (and all this by the height of the place;) by which means *Alcámenes* was Laughed at, and *Phidias* much more Esteemed. Of like perfection is *Amulius* his *Minerva*; the Image of *Juno* in the Temple of the Syrian Goddess; the Head of *Diana* exalted at *Chios*, made by *Bupalus* and *Anthemus*, *Hercules* in the Temple of *Antonia*, &c. An Artificer, saith *Philostratus* in *Proæmia Iconum*, must understand the Nature of a Man thoroughly, to express all his Manners, Guise, Behaviour, &c. he must discern the force in the Constitution of his Cheeks, in the turning of his Eyes, in the casting of his Eye-brows; in short, he must observe all things which may help the Judgment; and whosoever is thus furnished, will doubtless excel and bring things to perfection; he then may easily Paint a Mad-man, an Angry-man, a Pensive-man, a Joyful-man, an Earnest-man, a Lover, &c. in a word, the perfection of whatsoever may possibly be conceived in the Mind.

IV. *Continual observation of exquisite Pieces, (whether Artificial or Natural) nimble Conceptions, and Tranquility of Mind, are great means to bring Art to Perfection.*

The Works of the Antients could never have been so exquisite in the Expression of Passions, but by these means: How perfectly did *Zeuxis* Paint the modest and chaste Behaviour of *Penelope*; *Timomachus* the raging mad Fit of *Ajax*; *Silanius* the Frowardness of *Apollodorus*; *Protogenes* the deep Pensiveness of *Philiscus*; *Praxiteles* the Rejoycings

joycings of *Phryne*; *Parrhasius* a Boy running in Armour; and *Aristides* his *Anapanomenos* Dying for Love of his Brother? *Bodius* his Image of *Hercules*, is of the same nature: *Themistius* shews us the true Image of feigned Friendship; *Agellius* a most lively Image of Justice; *Appelles* an admirable Picture of Slander; thousands of Examples more might be drawn out of antient Authors, to approve these things, if these may be thought not sufficient.

V. *This Perfection also lyeth in the truth of the matter, the occasion thereof, and Discretion to use it.*

The most antient and famous Painters did make much account of Truth, and had rather lose the neatness and glory of their Pieces, than to endanger the truth of their Story; which indeed is the great Commendation of a Picture, for as much as *Lucian* saith, That nothing can be profitable but what proceeds from Truth. Occasion also is a great matter; the Picture of *Bacchus* may here serve for an excellent Example, whose Passion of Love was so clearly expressed therein; casting aside his brave Apparel, Flowers, Leaves, Grapes, &c. Now, in representing things truly according to the occasion, Discretion ought to be your Guide; for as in Tragedies, so also in Pictures all things ought not to be represented; let not *Medea* (saith *Horace* in libro de Arte) Murder her own Children in the presence of all the People; let not the wicked *Atreus* Boil Humane Flesh openly; there are doubtless many things, which had better be left out, though with some loss of the Story, than with the loss of Modesty; wanton, unlawful and filthy Lusts, (though they may gain the vain title of Wit) yet they diminish not only the Estimation of the Work-man, but also the Excellency of the Work, debarring it of perfection. Precepts help Art much, in propounding unto us the right way; but where they fail, our Wits must supply, by warily considering what is decent and convenient; for this Art requireth studious Endeavours; assiduous Exerci- tations, great Experience, deep Wisdom, ready Counsel, Veracity of Mind, diligent Observations, and great Discretion.

VI. *To the former add Magnificence, which gives Authority to things excellent.*

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Great minded Men are most of all given to entertain stately Conceits; therefore an *Artizan* ought to be of a magnanimous Nature; if not, yet that at least he ought with a determined Resolution to aim at magnificent things. So it seems, that Nature did dispose *Nicophanes* to a high strain of Invention; *Nicophanes* (saith *Pliny*, lib. 35. cap. 10.) was gallant and neat, so that he did Paint *Antiquities* for *Eternity*, whereby he was commended for the magnificence of his Work, and gravity of his Art. Such Artificers therefore as do bring any thing to perfection, must be of an exceeding great Spirit, and entertain upon every occasion great Thoughts and lofty Imaginations; by this means they shall gain an everlasting Fame; but this is impossible (saith *Longinus*) for any who busie the Thoughts and Studies of their Life about vile and slavish Matters, to bring forth any thing which might deserve the admiration of succeeding Ages. If any *Artizan* be not naturally of so great a Spirit, let him help himself by the reading of History and Poesie. History cannot but inspire a magnanimous Spirit, when she represents to us so many rare Exploits, and the Examples of so many great, noble and valiant Souls, who throughout all Ages, in the midst of most eminent Dangers, have demonstrated their Virtues and Spirits not only to those present, but all succeeding times. Poesie also being of a haughty and lofty Stile, doth much enlarge the Mind, and from thence many excellent things are brought: the much admired *Elean Jupiter* which *Phidias* made, himself confessed to be formed after the Image of *Jupiter* described in *Homer*. From the same Poet did *Apelles* Paint the Image of *Diana* among the Sacrificing Virgins. It is not the present Age, but the Sacred Memory of all Posterity, which gives unto us a weighty and durable Crown of Glory.

VII. *Exact Analogy or Proportion, not only advanced Art, but also brought it a degree nearer Perfection.*

Philostratus calls it *Symmetrie*, some *Analogy*, others *Harmony*; this is the Appellation of the *Greeks*; what the *Latins* called it scarcely appears, (as *Pliny* saith lib. 34. cap. 8.) yet words equivalent in power thereto are found, as *Congruens*, *Equality*; and *Tully* (*libro primo de Officiis*) calls it *Agreement* and apt *Composition*, *Vitruvius*, *Commodulation*; *Agellius* calls it a *natural Competence*; *Quintilian* approves the word *Proportion*; by which, saith

Plutarch, beautiful things are perfected: it is one of those things which the most High used in the Fabrication of the World, (*Wisd.* 11. 20.) *He hath disposed all things in measure, and number, and weight.* The first giver of *Symmetrie* or *Analogy* was *Parrhasius*; *Polycletus* was a diligent Observer thereof; *Asclepiodorus*, an exact Practiser thereof, whose Admirer was *Apelles*, who esteemed it to proceed out of some Perfections in an Artificer surpassing in Art, and which is most apparent in naked and undisguised Bodies. *Strabo* saith, that *Phidias* exactly observed this proportion in the Image of *Jupiter Olympicus* sitting. The same *Phidias*, as *Lucian* reports, could exactly tell upon the first sight of a Lions Claw, how big a Lion he was to make in proportion to the same Claw. Lineal Picture is the Foundation of all Imitation, which if it be done after the true Rules of Proportion, will lively represent the thing delineated: this is a Perfection in kind, which yet cannot be compared to the perfection of a coloured Picture.

VIII. *This point of Perfection was farther advanced by the exquisiteness of Colouring.*

The perfection of Colouring ariseth from a certain right understanding of each Colour severally, without which it is impossible to mix any thing rightly, as *Hermogenes* saith. The *Greeks* (as *Porphyrius*) call this mixtion of Colours, *Corruption*, which word *Plutarch* also used, when he said, that *Apollodorus* (who first found out the Corruption, or way of Shadowing in Colours) was an *Athenian*. *Lucian* calls it *Confusion*, where he saith, that by the Art of Painting, Images were made by a moderate confusion of Colours, as White, Black, Yellow, Red, &c. by which, as *Philostratus* saith in *Proemio Iconum*, we know how to imitate the Diversities of looks in a Mad-man, in a sad or cheerful Countenance; the colour of the Eye, as brown, gray or black; of the Hair, as golden, ruddy, bright or flaxen; of the Cloaths, as Cloth, Leather, or Armour; of Places, as Chambers, Houses, Forests, Mountains, Rivers, Fountains, &c. this is done by the accurate mixtion, due Application, and convenient Shadowing, as *Lucian* saith in *Zeuxide*; through the Observation of light, shadow, obscurity and brightness, as *Plutarch* will have it. For this cause, saith *Johannes Grammaticus*, is a white or golden Picture made upon a black ground. Light

is altogether necessary, seeing there can be no shade without it: Light and Shadow cannot subsist afunder, because by the one the other is apparent, for those things which are enlightned seem to stick out more, and to meet the Eyes of the Beholder; those which are shaded to be depressed. This same of Light and Shadow, *Nicias* the *Athenian* did most accurately observe; as also *Zeuxis*, *Polygnotus* and *Euphranor*, as *Philostratus* saith in *libro secundo de vita Apollonii*, cap. 9. *Apelles* Painted *Alexander* as if he held Lightning in his Hand; *Philostratus* observed the same in the Picture of an Ivory *Venus*, so that one would think it an easie matter to take hold of her; *Pausias* arrived to such an excellency in this, as scarcely any after could attain unto, as in the Painted Ox, saith *Pliny*, which he made inimitable. Obscurity or Darknes is only the duskiness of a deeper Shadow, as Brightness is the Exaltation of Light: if White and Black be put upon the same Superficies, the White will seem nearest, the Black farther off: this being known to make a thing seem hollow, as a Ditch, Cave, Cistern, Well, &c. it is coloured with Black or Brown; and so much the blacker, so much the deeper it seems; extream Black representing a bottomless depth; but to make it rise, as the Breasts of a Maid, a stretched-out Hand, &c. there is laid round, or on each side, so much black or brown, as may make the parts seem to stick out, by reason of the adjacent hollownes; brightness is sometimes used for necessity, but generally for Ornament, (as in the Pictures of *Angels*, *Gems*, *Armour*, *Flame*, *Flowers*, *Gold*, and the like) the which is made always with a mixture of light; which mixtion Painters call *Harmoge*, but is nothing else save an undiscernable piece of Art, by which the *Artizan* stealingly passeth from one colour into another, with an insensible distinction; this *Harmoge* is most perfect in the Rainbow, which containing evident variety of Colours, yet leaves them so indistinguishable, as that we can neither see where they begin, nor yet where they end, as *Boethius* observes in *libri quinti de arte musica capite quarto*. The last and chief perfection of Colouring lieth in the out-lines or extremities of the Work, being cut off with such a wonderful subtilty and sweetness, as to present unto us things we do not see, but that we should believe that behind the Pictures, there is something more to be seen, than can

easily be discerned ; thereby setting forth, as it were, those things which are really concealed, this was *Perrhasius* his chief glory ; but herein *Apelles* exceeded all others whatsoever, as *Petronius* in *Satyricon* seems to affirm.

IX. *Action and Passion is next to be considered, in which consists Life and Motion.*

There is not any thing that can add a more lively grace to the Work, than the extream likeness of Motion, proceeding from the inward Action or Passion of the Mind. It is therefore a great point of Art, which leads unto Perfection, the which we are to learn by casting our Eyes upon Nature, and tracing her steps. Consider all the Gestures of the Body, as the Head, by which is expressed the Affections of the Mind. The casting down of the Head, sheweth dejection of Mind ; being cast back, Arrogance ; hanging on either side, languishing ; being stiff or sturdy, churlishness : by it we grant, refuse, affirm, threaten ; or passively, or bashful, doubtful, sullen, envious, &c. by the motions of the Countenance appears Sorrow, Joy, Love, Hatred, Courtesie, Courage, Dejection, &c. by the motions of the Countenance, are exprest the Qualities of the Mind, as Modesty and Shamefacedness, or Boldness and Impudence : but of all the parts of the Countenance, the Eyes are most powerful, for they, whether we move or move not, shew forth our Joy or Sorrow ; this is excellently exprest by the Prophet, in *Lam. 3. 48.* פלג מים תרר עוני על שבר בתי עמי *palge majim terrad gneni, gnal sheber bat gnammi*, which *Tremellius* renders, *Rivus aquarum perfluit oculus meus, propter contritionem filia populi mei* : and again עוני נגרה ורר חרמה *gneni niggerah velo tidmah*, i. e. *oculus meus defluit nec desistit*. For the same purpose it is that Nature hath furnished them with Tears ; but their Motion doth more especially exprest the Intention, as Meekness, Pride, Spitefulness, and the like ; all which are to be imitated, according as the Nature of the Action shall require, as staring, closed, dull, wanton, glancing, asking or promising something. The Eye-brows also have some actions, for they chiefly command the Fore-head by contracting, dilating, raising and depressing it ; wrinkled Brows shew Sadness and Anger ; Displayed, Cheerfulness ; Hanging, Shame ; Elation, Consent ; Depression, Dissent, &c. The Lips shew Mocking, Scorning, Loathing, &c. The Arm gently cast forth, is graceful in

familiar Speech; but the Arm spread forth towards one side, shews one speaking of some notable Matter; without the motion of the Hands all motion is maimed: the Hands, as it were, call, dismiss, threaten, request, abhor, fear, ask, demand, promise, deny, doubt, confess, repent, number, measure, rejoyce, encourage, beseech, hinder, reprove, admire, relate, commend, &c. In admiration we hold the Hand up, bent somewhat backward, with all the Fingers closed: in relating we join the top of the Fore-finger to the Thumb-nail: in promising we move it softly: in exhorting or commending, more quick: in penitence and anger, we lay our closed Hand to the Breast: we close the Fingers ends, and lay them to our Mouth when we consider, &c. It is not yet enough that the Picture or Image resembles the proportion and colour of the Life, unless it likewise resembles it in the demeanour of the whole Body; therefore *Callistratus* calls this Art, the Art of Counterfeiting Manners. *Ulysses* is evidently, saith *Philostratus*, discerned by his Austerity and Vigilancy; *Menelaus* by his gentle mildness; *Agamemnon* by a kind of Divine Majesty; *Ajax Telamonius* by his grim look; *Locrus* by his readiness and forwardness. The best Artists ever change their Hands, in expressing of Gods, Kings, Priests, Senators, Orators, Musicians, Lawyers, &c. *Zenxis* Painted the Modesty of *Penelope*: *Echion* made a new Married but Shamefaced Woman: *Aristides* Painted a running Chariot drawn with four Horses: *Antiphilus* made a Boy blowing the Fire: *Philoxenus Eretrius* depicted the Picture of Wantonness: *Parrhasius* made the *Hoplitides* or Pictures of two Armed Men, as may be seen in *Pliny lib. 35. cap. 9, 10, and 11.* *Boethius* made a Babe strangling a Goose: *Praxiteles* made a weeping Woman, and a rejoycing Whore: *Euphranor* drew the Picture of *Paris* as a Judge, a Wooer and a Soldier: see *Pliny lib. 34. cap. 8.* where you may have many other Examples. It is worth our pains to see in *Callistratus* these Descriptions at large, whereby we may see it is a singular perfection of Art.

X. *The last step of Perfection is the right ordering and disposing of things.*

This Order or Disposition must be observed as well in a Picture consisting of one Figure, as in a Picture of many Figures. The Nature of Man, saith *Xenophon* in *Oeconomico*, cannot name any thing so useful and fair, as Order;

der; a confused piece of Work cannot deserve admiration; those things only affect us, wherein every part is not only perfect in it self, but also well disposed by a natural Connexion. It is not enough in a Building to bring Hair, Lime, Sand, Wood, Stones, and other Materials, unless we take care that all this confused Stuff be orderly disposed to the Intent. Nature it self seems to be uphelden by Order, and so are all things else which are subjugated to the same Law. Now, the way to attain to this true order of Disposition, is, *First*, To conceive the *Idea* of the History in the Imagination, that the presence of the things in the mind may suggest the order of disposing each thing in its proper place, yet with that subtilty, that the whole may represent one entire Body. *Secondly*, That the frame of the whole Structure of this Disposition may be analogous to the things themselves; so that we may at once represent things which are already done, things which are doing, and things which are yet to be done; perfecting, as *Philostratus* saith, in every one of these things, what is most proper, as if we were busied about one only thing. *Thirdly*, An Historical Picture must represent the series of the History, which although the Picture be silent, yet that the Connexion might (as it were) speak, putting the principal Figures in the principal places. *Fourthly*, The parts must be connected, easily rolling on, gently flowing or following one another, hand in hand, seeming both to hold and be upheld, free from all abruption, well grounded, finely framed, and strongly tyed up together; that the whole may be delightful for its Equality, grave for its Simplicity, and graceful for its universal Analogical Composure. *Fifthly*, That most excellent pieces (if the History will suffer it) be shadowed about with rude Thickets, and craggy Rocks, that by the horridness of such things, there may accrew a more excellent grace to the principal; (just as Discords in Musick make sometimes Concords) from whence results a singular Delight. *Sixthly*, That to these things be added *Perspicuity*; which, as *Lucian* saith, through the mutual Connexion of things, will make the whole compleat and perfect. *Seventhly, and lastly*, That the disposition of the proportion be observed, in the due distance of each Figure, and the position of their parts, of which we have said something, *Section seventh*; but in general

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Chap. 3. *The Perfection of Painting.* 325

Pliny (*lib. 35. cap. 10.*) saith, that in this general disposition of proportional distances, we have no Rules; our Eye must teach us what to do; to which *Quintilian* assents, where he saith, that these things admit no other Judgment, but the Judgment of our Eyes.

XI. Lastly, *For the absolute Consummation or Perfection of the Art, Excellency of Invention, Proportion, Colour, Life and Disposition, must universally concur, and conspire, to bring forth that comely gracefulness, which is the very Life and Soul of the Work, the entire and joint Summ of all Perfections.*

It is not enough, that a Picture is excellent in one or more of the aforesaid Perfections, but the Consummation is, that they all concur; for if but one be wanting, the whole Work is defective. A good Invention affects the Mind; true Proportion draws the Eyes; lively Motion moves the Soul; exquisite Colours beguile the Phantasia; and an orderly Disposition wonderfully charms all the Senses; if all these unite and center in one piece, how great an Excellence and Perfection will appear? *What a comely Grace?* this Grace it is, which in beautiful Bodies is the Life of Beauty, and without which, its greatest Accomplishments cannot please the Beholder. For it is not so much the perfection of Invention, Proportion, Colours, Motion and Disposition apart, which affect the Senses, but all those Perfections absolutely united, which brings forth that comely Grace, and highest Perfection, which Art aims at, and the Artizan strives after. This Grace proceeds not from any Rules of Art, but from the excellent Spirit of the Artificer; it is easier attained by Observation and a good Judgment, than learned by Precepts, as *Quintilian* in his Institutions, *lib. 11. cap. 1.* learnedly observes. And this Grace is most graceful when it flows with Facility, out of a free Spirit, and is not forced or strained out with Labour and Toil, which quite spoils and kills the life of the Work: Now, this Facility springs from Learning, Study and Exercitation. Art and Nature must concur to the Constitution of this Grace; Art must be applied discreetly to those things which we naturally affect, and not to things which we loath; lest we miss of that Glory which we seek after.

C H A P. IV.

How the Antients Depicted their Gods; and first of Saturn.

WE here intend to comprehend the various ways of the Antients in Depicting their Idols, according to the Customs of those several Nations, where they were Adored and Worshipped, and that from the most antient, chiefest and best approved Authors now extant.

I. The antient Romans figured Saturn like an old Man, with a Scythe or Hook in his Hand, by some signifying Time, as his name Chronos also intimates.

II. They also figured him in the shape of a very Aged Man, as one who began with the beginning of the World, holding in his Hand a Child, which by piecemeals he seems greedily to devour.

By this is signified the Revenge he took for being expelled Heaven by his own Children, of which those which escaped his Fury, were only four, Jupiter, Juno, Pluto and Neptune, by which is shadowed forth the four Elements, Fire, Air, Earth and Water, which are not perishable by the all-cutting Sickle of devouring Time.

III. Martianus Capella Depicts him an old Man, holding in his Right Hand a Serpent, with the end of its Tail in its Mouth, turning round with a very slow pace, his Temples girt with a green Wreath, and the Hair of his Head and Beard milk white.

The Wreath on his Head shews the Spring-time, his snowy Hair and Beard the approach of churlish Winter; the slowness of the Serpents motion, the sluggish Revolution of that Planet.

IV. Macrobius describes him with a Lions-head, a Dogs-head, and a Wolfs-head.

By the Lions-head is signified the time present, (which is always strongest, for that which is, must needs be more powerful than that which is not) by the Dogs-head, the time to come, (which always fawns on us, and by whose alluring Delights we are drawn on to vain and uncertain hopes) and by the Wolfs-head, time past, (which greedily devoureth whatsoever it finds, leaving no memory thereof behind.)

V. Macro-

V. *Macrobius* also saith, that among the rest of his Descriptions, his Feet are tyed together with threads of Wooll.

By which is shewed, that God does nothing in haste, nor speedily castigates the Iniquities of Man, but proceeds slowly and unwillingly, to give them time and leisure to amend.

VI. *Eusebius* saith, that *Astarte* (the Daughter of *Cæ-lum*, Wife and Sister of *Saturn*) did place also upon his Head two Wings, demonstrating by the one, the excellency and perfection of the Mind; by the other, the force of Sense and Understanding.

The *Platonicks* understand by *Saturn* the Mind, and its inward Contemplation of things Cælestial, and therefore called the time in which he lived, the Golden Age, it being replete with Quietness, Concord, and true Content.

CHAP. V.

How the Antients Depicted Jupiter.

I. *Orpheus* describes him with golden Locks, having on his Temples peeping forth two golden Horns, his Eyes shining, his Brest large and fair, having on his Shoulders Wings.

By the golden Locks is signified the Firmament, and its glorious Army of Tralucient Stars: by his two Horns, the East and West: by his Eyes, the Sun and Moon: by his Brest, the spacious Ambulation of the Air; and by his Wings, the Fury of the Winds.

II. *Porphyrus* and *Suidas* Depicted the Image of Jupiter sitting upon a firm and immoveable Seat; the upper parts naked and unclothed, the lower parts covered and invested; in his Left Hand a Scepter; in his Right Hand a great Eagle, joined with the Figure of *Victoria*.

This Image was erected in *Piræus*, a stately and magnificent Gate of *Athens*: by the Seat is shewed the Permanency of God's Power: the naked parts shew that the Compassion of the Divine Power is always manifest to those of an understanding Spirit: the lower parts covered, shew that while we wallow in the World, and as it were rock'd asleep with the illicebrous

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Blandishments thereof, that the Divine Knowledge is hid and obscured from us: by the Scepter is signified his Rule over all things: Eagle and Victoria how all things stand in Vassalage and Subjection to the all-commanding Power.

III. *Martianus* Depictures him with a regal Crown, adorned with most precious and glittering Stones; over his Shoulders, a thin Vail (made by *Pallas* own Hands) all white, in which is inserted divers small pieces of Glais representing the most resplendent Stars; in his Right Hand he holdeth two Balls, the one all of Gold, the other half Gold half Silver; in the other Hand an Ivory Harp with nine Strings, sitting on a Foot-cloth, wrought with strange Works, and Peacocks Feathers; and near his Side lieth a Tridental Gold Embossed Mass.

IV. *Plutarch* saith, that in *Crete*, he had wholly Humane Shape and Proportion, but without Ears.

By that was signified, that Superiours and Judges ought not to be carried away by Prejudice nor Perswasion, but stand firm, stedfast and upright to all without Partiality.

V. Contrariwise the *Lacedamonians* framed his Picture with four Ears.

By that they signified, that God heareth and understandeth all things; and that Princes and Judges ought to hear all Informations, before they deliver definitive Sentence or Judgment.

VI. *Pausanias* saith, that in the Temple of *Minerva* (among the *Argives*) the Statue of *Jupiter* was made with three Eyes; two of them in their right places; the other in the middle of his Fore-head.

By which is signified his three Kingdoms; the one Heaven, the other Earth, the last Sea.

VII. With the *Eleans* (a People of *Grece*) the Statue of *Jove* was compacted of Gold and Ivory, empaled with a Coronet of Olive Leaves; in his Right Hand the Image of *Victoria*; in his Left a Scepter, on the top of which was mounted the Portraicture of an Eagle, upon a Seat of Gold, enchased with the forms of many unknown Birds and Fishes, upheld and supported by four Images of *Victoria*.

VIII. In *Caria* (a Place of the lesser *Asia*) the Statue of *Jupiter* was made holding in one of his Hands a Pole-Axe.

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The reason of this was, as Plutarch saith from Hercules, who overthrowing Hippolyta the Amazonian Queen, took it from her, and gave it to Omphale his Wife, a Lydian. The Platonists understand by Jupiter, the Soul of the World; and that Divine Spirit, through whose Almighty Power every thing receives its Being and Preservation.

IX. He is also Painted with long curled black Hair in a purple Robe, trimmed with Gold, and sitting on a golden Throne, with bright yellow Clouds dispersed about him.

C H A P. VI.

How the Antients Depicted Mars.

I. **M**Acrobius saith, that the Pictures of *Mars* were adorned and beautified with the Sun-beams, in as lively a manner as could be devised; with an Aspect fierce, terrible, and wrathful, hollow red Eyes, quick in their motion, Face all hairy, with long curled Locks on his Head, depending even to his Shoulders, of a coal black colour, standing with a Spear in the one Hand, and a Whip in the other.

II. He is also sometimes Depicted on Horseback, and sometimes in a Chariot, drawn with Horses called *Fear* and *Horror*: some say the Chariot was drawn with two Men, which were called *Fury* and *Violence*.

III. *Statius* saith he wore on his Head a Helmet most bright and shining, so fiery as it seemed there issued flashes of Lightning; a Brest-plate of Gold, insculp'd with fierce and ugly Monsters; his Shield depainted all over with Blood, enchas'd with deformed Beasts, with a Spear and Whip in his Hands, drawn in a Chariot with two Horses, *Fury* and *Violence*, driven with two churlish Coach-men, *Wrath* and *Destruction*.

IV. *Isidorus* saith, that the Picture of *Mars* was depainted with a naked Brest.

By which is signified, that Men ought not to be timorous in War, but valiantly and boldly expose themselves to Hazards and Dangers.

V. *Statius*

V. *Statius* saith, that the House of *Mars* was Built in an obscure corner of *Thracia*, made of rusty, black Iron; the Porters which kept the Gates, were *Horror* and *Madness*; within the House inhabited *Fury*, *Wrath*, *Impiety*, *Fear*, *Treason* and *Violence*, whose Governess was *Discord*, seated in a regal Throne, holding in one Hand a bright Sword, and in the other a Basin full of Humane Blood.

VI. *Ariosto*, describing the Court of *Mars*, saith, that in every part and corner of the same were heard most strange Echoes, fearful Shrieks, Threatnings, and dismal Cryes; in the midst of this Palace was the Image of *Virtue*, looking sad and pensive, full of Sorrow, Discontent and Melancholy, leaning her Head on her Arm: hard by her was seated in a Chair, *Fury* in Triumph: not far from her sate *Death*, with a bloody stern Countenance, offering upon an Altar in Mens Skulls Humane Blood, Consecrated with Coals of Fire, fetch'd from many Cities and Towns, burnt and ruinated by the Tyranny of War.

C H A P. VII.

How the Antients Depicted Phœbus or Sol.

I. *Macrobius* saith, that in *Assyria* was found the Statue of *Apollo*, *Phœbus* or *Sol*, the Father of *Æsculapius*, in the form of a young Man, and Beardless, Polished with Gold, who stretching out his Arms, held in his Right Hand a Coach-man's Whip; and in his Left a Thunderbolt, with some Ears of Corn.

The Tyrant of Syracuse, *Dionysius*, with fury pulled off the Beard from the Figure of *Æsculapius*, saying it was very Incongruous that the Father should be Beardless, and the Son have one so exceeding long.

II. *Eusebius* saith, that in *Egypt* the Image of *Sol* was set in a Ship, carried up, and supported by a Crocodil: and that they (before Letters were invented) framed the shape of the Sun, by a Scepter, in the top of which was dexterously Engraven an Eye.

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Chap. 7. Of Depicting Phœbus or Sol. 331

The Scepter signified Government: the Eye, the Power, which oversees and beholds all things.

III. The Lacedæmonians Depicted Apollo with four Ears, and as many Hands.

By which was signified the Judgment and Prudence of God, being swift and ready to hear, but slow to speak, and from thence grew that Proverb among the Grecians.

IV. Herodotus reporteth, that the Phœnicians had the Statue of the Sun made in black Stone, large and spacious at bottom, but sharp and narrow at top, which they boasted to have had from Heaven.

V. Lactantius saith, that in Persia, Phœbus or Apollo was their chiefest God, and was thus described; he had the Head of a Lion habited according to the Persian Custom, wearing on his Head such Ornaments as the Women of Persia used, holding by main force a white Cow, by the Horns.

The Head of the Lion sheweth the Suns Dominion in the Sign Leo; the Cow shews the Moon, whose Exaltation is Taurus; and his forceable holding, the Moons Eclipse, which she cannot avoid.

VI. Pausanias telleth, that in Patra, a City of Achaia, a metalline Statue of Apollo was found in the proportion of an Ox or Cow.

VII. Lucianus saith, that the Assyrians shaped him with a long Beard, (shewing his perfection;) upon his Brest a Shield; in his Right Hand a Spear, in the top of which was *Victoria*; in his Left Hand *Anthos*, or the Sun Flower: this Body was covered with a Vestment, upon which was painted the Head of *Medusa*, from which dangled downwards many swarms of Snakes; on the one side of him *Eagles* flying, on the other side a lively *Nymph*.

VIII. The Egyptians composed the Statue of the Sun in the shape of a Man, with his Head half Shaven.

By the Head half Shaven, is signified, that though his Beauty or Shining may be clouded for a time, yet that he will return and beautifie the same with his pristin Brightness; as the growing of the Hairs (which signifie his Beams) to their full extent and perfection again, may denote.

IX. Martianus thus describes him; upon his Head (saith he) he wears a Royal and Gorgeous Crown, in-chased with multitudes of precious Gems; three of which
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beautifie his Fore-head ; fix his Temples ; and three other the hindermost part of the Crown : his Hair hanging down in tresses, looks like refined Gold, and his Countenance wholly like Flame : his Vestment is thin, subtil, and wrought with fine Purple and Gold ; in his Right Hand he holds a bright Shield, and in his Left a flaming Fire-brand : on his Feet he hath two Wings, beset with fiery Carbuncles.

X. *Eusebius* writeth, that in *Elephantinopolis* (a City in *Egypt*) the Image of *Apollo* was framed to the due likeness of a Man throughout the Body, save only, that he had the Head of a Ram, with young and small Horns, and his Aspect of a *Cerulean* and blewish Green, not unlike to that of the Sea.

The Head of the Ram signifies the Suns Exaltation in the Sign Aries ; and the young Horns the change or new of the Moon, made by her Conjunction with the Sun, in which she looks blewish.

XI. He is also Drawn with long curled golden Hair, Crowned with a Lawrel, in a purple Robe, a silver Bow in his Hand, sitting on a Throne of Emeralds.

*There might you see with greatest Skill intexed,
The Portraiture of Phœbus lively drawn ;
And his fair Sisters Shape thereto annexed,
Whose shining parts seem'd shadow'd o're with Lawn.
And though with equal Art both were explain'd,
And Workmens care gave each of them their due,
Yet to the view great difference remain'd,
In Habit, Shape, Aspect, and in their Hue.
For one of them must give the day his light :
And th' other reign Commandress of the night.*

C H A P. VIII.

How the Ancients Depicted Venus.

I. **H**ER Statue is framed in the shape of a most beautiful and young Woman, standing upright in a huge Shell of Fish, drawn by two other most ugly and strange Fishes, as *Ovid* at large noteth.

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Chap .9. Of Depicting Mercury. 333

II. *Pausanius* saith she is drawn in a Coach, through the airy passages, with two white Doves, (as *Apuleius* also affirmeth) which are called the Birds of *Venus*.

III. *Horace* and *Virgil* affirm, that the Chariot of *Venus* is drawn by two white Swans, of which *Statius* also maketh mention, who saith that those Birds are most mild, innocent, and harmless, and therefore given unto *Venus*.

IV. *Praxiteles* an excellent Engraver in the Island of *Gnidos*, made her Image Naked, and without Cloths, as also did the *Grecians*.

By which was signified, that all Luxurious and Licentious People were, by their inordinate Lusts, like Beasts, deprived of Sense, and left, as it were, Naked, and despoiled of Reason, and Understanding; and oftentimes also stripped thereby of their Riches, Goods, and Estates.

V. *Lactantius* saith, that the *Lacedemonians* framed and composed the Image of *Venus* all Armed like a Warrior, holding in one hand a Spear, in the other a Shield or Target.

And this was by reason of a certain Victory which the Women of that Place got over their Enemies, the People of *Messenia*, which success they supposed to have proceeded from the Power and Assistance of *Venus*, as inspiring these Womens Hearts with Courage, Stoutness and Resolution.

VI. She is also depicted with Yellow Hair, attired with Black; a Scarlet, or else Dun-coloured Robe.

CHAP. IX.

How the Ancients depicted Mercury.

I. THE Ancients described him in the shape of a Young Man without a Beard, with two small Wings fixed behind his Shoulders and Ears, his Body almost all Naked, save that from his Shoulders depended a thin Veil, which winded and compassed about all his Body; in his Right Hand he held a Golden Purse, and in his Left a *Caduceus*, or Snaky Staff, to wit, a slender White Wand, about which two Serpents do annodate

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and entwine themselves, whose Heads meet together just at the top, as their Tails do at the lower end.

This resemblance was called Concordia or Signum Pacis; upon which it came to pass, that Ambassadors, and great Men in matters of State, carried always in their hand such a like Staff, and were called Caduceators.

II. *Apuleius* writeth that *Mercury* was a very youth, having very short Hair on his Head, of an Amber Colour, and Curled, having for a Vestment only a subtil and thin Veil made of purple Silk.

III. *Martianus Capella* describes him young, yet of a strong and well composed Body, with certain young Hairs, of a yellowish colour sprouting out of his Chin.

IV. *Pausanias* saith, that in a Province of *Corinth*, he was depicted like a young Man carrying a Ram upon his Shoulders: And that a Statue (brought from *Arcadia* unto *Rome*) erected in the Temple of *Jupiter Olympicus*, had on its Head a Helmet of Engraven Steel; and over his Shoulder, a Coat, who held under his Arm the Image of a Ram.

V. Among some of the *Egyptians* his Image was framed with a Head like a Dog's, holding in his Right Hand a *Caduceus*, or Snaky Wand; shaking with his Left a green Bough of Palm.

By the Head of the Dog was understood subtilty and craftiness (no Beast being so subtil as a Dog;) by the Snaky Wand, the power of Wisdom and Eloquence in producing of Peace, signified by the green Palm.

VI. By some he was depicted in the Similitude of a very aged Man, his Head almost bald, save that on the sides there remained some few Hairs, short and curled; his Looks grim, severe and fowre; his Complexion of a tawny, ancient hue; his upper Garment, of a Lions skin; in his Right Hand a huge Poll-ax, in his Left Hand an Iron Bow; at his Back hanging a Quiver of Steel-headed Arrows; to the end of his Tongue were fastned many small chains of Gold, at whose ends were tied multitudes of all sorts of Men, which he seemed to draw unto him; looking always backward, to behold the innumerable Troops of People following him.

By this description is signified the All-powerful and Attractive Virtue of Eloquence; which by his Age is understood to be found only in Old, Wise, and Experienced Men, as being
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Chap. 10. Of Depicting Diana or Luna 335

in them more mature and perfect, than in those of younger Years, of which Homer speaks at large in his Commendation and Praise of Nestor : from whose Mouth (saith he) plentifully rolled forth most pleasant and dulcid Streams ; whose Pen distilled Crystalline drops of delicious Sweetness ; whose Works and Fruits so compleatly adorned with Golden Sentences, asswageth the malice of Time, and mitigateth and allayeth the spight of Forgetfulness, that his Perpetuity is Ingraven in the Brass-leav'd Books of Eternal Memory, never to be Blotted out.

VII. He is also drawn with long curled yellow Hair, in a Coat of flame colour, and with a Mantle purely white, trimmed with Gold and Silver ; his Beaver white, with white Feathers, his Shoes Golden, his Rod Silver.

C H A P. X.

How the Ancients depicted Diana or Luna:

I. **D**iana, Cynthia, Lucina or Luna, was, according to Propertius, depicted in the likeness of a young Beautiful Virgin ; having on either side of her forehead two small glistening horns, newly putting forth, drawn through the Air in a Purple Coloured Coach, by two swift paced Horses, the one of a Sad Colour, the other of a White.

These two differing Horses, Boccace saith, shew that she hath power both in the Day and Night.

II. Claudianus saith, that her Chariot is drawn by two White Bullocks, (which Image the Egyptians worshipped with great zeal and reverence) having one of their flanks bespotted with divers Stars, and on their heads two such sharp horns as the Moon hath in her chiefeſt Wane.

III. Cicero describes her Statue (which he brought out of a Temple in Cilicia) of a wonderful height, and large dimension, the whole Body covered with a large thin Veil, of a youthful Aspect, holding in her right hand a lively burning Torch, and in her left an Ivory Bow, with a Quiver of Silver-headed Arrows hanging at her back.

IV. The Poets (who call her the Goddess of Hunting, and Imperial Governess of Woods and Groves) describe her in the habit of a young *Nymph*, with her Bow ready bent in her hand, and a Quiver of Arrows hanging by her left side; a swift paced Grey-hound fast tyed to her right side, with a Collar about his Neck; and after her followed Troops of *Sylvan Virgins*, which are Chast, and are called the *Nymphs of Diana*.

V. These Virgins and Votresses of the Goddess, are thus described.

*Scarce mounted Sol upon his glorious Car,
When o're the lofty Hills, and lowly Plain,
Running apace you might perceive afar
A Troop of Amazons to post amain:*

*But when they nearer came unto your view,
You might discern Diana and her Crew.
A careless Crew of lively Nymphs, despising
The joyous Pleasures and Delights of Love;
Wasting their Days in Rural Sports devising:
Which know no other, nor will other prove.*

*Wing'd with desire to overtake the chase,
Away they flung with unresisted pace.
Their Necks and purple Veined Arms are bare,
And from their Ivory Shoulders to their Knee,
A Silken Vestment o're their Skin they ware,
Through which a piercing Eye might chance to see.
Close to their Bodies is the same engirted,
Bedeck'd with pleasing flowers there inserted.
Each in her Hand a Silver Bow doth hold,
With well-stor'd Quivers hanging at their Backs:
Whose Arrows being spent they may be bold
To borrow freely of each others Packs.*

*Thus are these nimble skipping Nymphs display'd,
That do attend that Goddess, Queen and Maid.*

VI. In *Arcadia*, saith *Pausanias*, was a Statue of *Diana*, covered over with the skin of a Hind, and from her shoulders hung a Quiver of Arrows; in one Hand a burning Lamp, the other leaning upon the Heads of two Serpents, and before her Feet a Hound.

VII. The *Egyptians* worshipped her under the name of *Isis*; and depicted her covered with a Black and
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Sable Vestment, in token that she her self giveth no light ; holding in one hand a Cymbal, in the other an Earthen Vessel of Water, upon which, as *Servius* saith, many thought her to be the Genius of Egypt.

By the Cymbal is shewed the murmurings and roarings of Nilus, when it overflows Egypt ; and by the other vessel the nature of the Country, which is moist and full of Lakes, Pools and Rivers.

VIII. She is also depicted with Yellow Hair, a Grass Green Mantle, trimmed with Silver ; Buskins Silver ; Bow Golden, Quiver of various Colours.

IX. *Nympha Diana* in White Linnen to denote their Virginity, and their Garments girt about them, their Arms and Shoulders naked, Bows in their Hands, and Arrows by their Sides.

CHAP. XI.

How the Ancients depicted Janus:

I. *Janus* is depicted with two Faces ; in the one of his Hands is a long Rod or Wand ; in the other a Key.

The two Faces of *Janus* signifie time ; the one being withered and hoary, shews time past, the other Youthful and Beardless, time to come.

II. *Pliny* saith that *Numa*, King of the Romans, caused the Statue of *Janus* to be hewed out in such sort, that the Fingers of his Hands appeared to be three hundred sixty five, to shew that he was God of the Year, whereupon they called the first Month in the Year *Januarius*, from *Janus* their God.

Under the Feet of *Janus* are oftentimes placed twelve Altars, shewing thereby the Months of the Year, or Signs of the Zodiack, thro' which Sol makes his Revolution.

III. The *Phœnicians*, as *Cicero* and *Macrobius* report, framed his Image in the form of a Serpent, holding her Tail in her Mouth, and continually turning round.

IV. Some depicted *Janus* with four Faces, (as were those Statues which were found in divers places of *Tuscany*.

By the four Faces were signified the four Seasons of the Year, Spring, Summer, Autumn, and Winter : which some think to be Venus, Ceres, Bacchus and Vulcan ; and sometimes the Winds, with Æolus their Commander.

CHAP. XII.

How the Ancients depicted Aurora.

I. **H**omer describes her like a young Virgin, having her Hair dishevelled, and hanging loose about her shoulders, being of the colour of the purest Gold, sitting in a Golden Chair, with all her Vestments of that hue and colour.

II. *Virgil* saith, that upon the instant time of the Sable Nights departure, she cometh with one of her hands full of Roses, Gilliflowers and Lillies, taken out of a Basket which she carries in the other hand, which she besprinkles on the Marble Pavement of the lower Heavens, adorning the Sun with unspeakable Beauty.

III. Others describe her, holding in one hand a flaming Torch, and drawn in a Gorgeous and Star-bespotted Chariot, by winged *Pegasus* ; which favour she obtained of *Jupiter* by many importunate requests, presently after the downfall of *Bellerophon*.

IV. She is as it were the Herald and Messenger of *Phœbus*, who receives her being from the Virtue of his Beams ; and is no other but that Rubicund and Vermillion blush in Heaven, which *Sol's* first appearance worketh in the *Orient*, and from thence descending, beautifies our *Hemisphere* with such a resplendency.

V. She is also depicted in a purple Robe, in a blue Mantle fring'd with Silver.

CHAP.

C H A P. XIII.

How the Ancients depicted Juno.

I. **S**HE was set forth by the Ancients like a middle aged Woman holding in one hand a Silver Vessel, in the other a sharp Spear ; and *Homer* saith she was drawn in a Chariot glistering with Precious Stones ; whose Wheels were Ebony, and their Nails fine Silver, mounted upon a Silver Seat ; and drawn with Horses, which were fastned with Chains of Gold.

II. She is oftentimes depicted with a Scepter in her hand, to shew that she hath the bestowing of Governments, Authorities and Kingdoms.

III. *Marianus* depicts her (sitting in a Chair under *Jupiter*) with a thin Veil over her Head, with a Coronet upon it, in chased and adorned with many Precious Jewels ; her inward Vestment fine and glittering, over which depended a Mantle of a sad darkish colour, yet with a secret shining Beauty ; her Shoes of an obscure and fable colour ; in her right Hand a Thunderbolt ; and in her other a loud noised Cymbal.

IV. *Pausanias* saith that in a Temple in *Corinth*, her Statue (made of Gold and Ivory) was adorned with a glorious Crown, on which was insculped the Pictures of the *Graces* ; with a *Pomegranate* in the one hand, and a Scepter (on the top of which was a Cuckow) in the other : for that *Jupiter*, when he was first enamoured of *Juno*, transformed himself into that Bird.

Touching this Story (and others of like kind) *Pausanias* saith, that although he did not believe such things to be true, nor any others, which are so written of the Gods ; yet, saith he, they are not altogether to be rejected, in that there were no such things, as reported, but that they were impleated and filled with Mysteries, and carried in themselves an inward meaning, and secret understanding, the which no doubt some might by their writings have unshadowed, if the Tyranny of fore-passed times had not destroyed and obliterated the same.

V. *Tertullian* writeth, that in *Argos*, a City in *Greece*, the Statue of *Juno* was covered all over with the boughs

of a Vine, and underneath her Feet lay the skin of a Lion, which discovered the hatred and disdain she bare towards *Bacchus* and *Hercules*, to whom (as the Poets say) she was Step-mother.

VI. Some have Painted her a middle aged Woman, holding in one Hand a Poppey-flower, or Head : with a Yoke, or pair of Fetters lying at her Feet.

By the Yoke was meant the Band of Marriage, which tyeth Man and Wife together : And by the Poppey, fruitfulness, or the innumerable issue of Children, which are brought forth into the World (signified by the roundness of the Poppey head, and its numberless Seeds therein contained.) From hence many suppose her to be the Goddess of Marriage.

VII. She is also Painted with Black Hair and Eyes, adorned with a Sky-coloured Mantle, or Pied ; wrought with Gold and Peacocks Eyes, like the Orient Circles in the Peacocks Train.

C H A P. XIV.

How the Ancients depicted Ops and Tellus.

I. **M***Artianus* saith, that *Ops* (the Wife of *Saturn*) is an Old Woman, of great bigness, continually bringing forth Children, with whom she is encompassed and set round, going in a Green Vestment, with a Veil over her Body, spotted with divers colours, wrought with infinite curious knots, and set with all sorts of Gems and Metals.

II. *Varro* (out of *Boccace*) thus describes her : She is Crowned (saith he) with a Crown insculpt with Castles and Towers ; her Apparel Green, overladed with Boughs ; in the one hand a Scepter, in the other a Ball or Globe ; and near to her a Chariot of four Wheels, drawn by four Lions.

By the Crown is signified the Habitations of the Earth ; by the Greenness and Boughs, the Increase thereof ; by the Scepter, the Kingdoms and Governments of the World ; by the Ball, the roundness thereof ; by the Chariot, the continual Motion, Change and Alteration of Things ; by the Lions, the

Wisdom

Chap. 15. Of Depicting Neptune. 341

Wisdom and Strength of Mankind, by which things are carried on and managed.

III. *Ifidorus* saith, that this Goddess was Painted holding a Key in one of her hands : which shews, that in the Winter the Bowels of the Earth are Locked up by reason of cold ; which at the approach of Spring and Summer are unlocked again.

IV. She was sometimes depicted in the form of an Ancient Woman, having her Head Circumcinct with Ears of Corn, holding in her hand a Poppey-head ; drawn in a Chariot (as *Orpheus* saith) with two fierce and untamed Dragons.

V. The Earth is also called *Ceres*, which many have depicted with Torches, Lights and Fire-brands in her Hands ; as *Praxiteles* in a Temple, seated upon a Promontory of *Attica*.

VI. She is also Pictured in a long Green Mantle.

C H A P. XV.

How the Ancients depicted Neptune, and the Sea Gods.

I. **N** Neptune among the Ancients is depainted with several Countenances, sometimes with Mild and Pleasant Looks, sometimes with Lowring and Sad, and at other times with a Mad, Furious and Angry Aspect ; Naked, holding in his Hand a Silver Trident or forked Mace, standing upright in the Concavity of a great Sea Shell, forcibly drawn by two Monstrous Horses, which from the middle downwards have the proportion and shape of Fishes, as *Statius* saith.

That variety of Aspects (according to Virgil and Homer) is given him from the Sea, in that it at sundry times sheweth it self so : And the Trident, the three Gulfs of the Mediterranean Sea.

II. Sometimes he is depainted with a thin Veil hanging over one of his Shoulders, of a Cerulean or Blewish Colour.

III. *Lucianus* setteth him down with marvellous long
Hair

Hair hanging down over his Shoulders, of a very Sad and Darkish Colour.

Yet Servius and others affirm, that all the Gods of the Sea were for the most part in the shape of Old Men with White and Hoary Hairs, proceeding from the Froth or Spume of the Sea.

IV. *Plato* describes him in a sumptuous Chariot, holding in one hand the Reins of a Bridle : in the other a Whip, drawn by Sea-Horses Galloping.

V. *Martianus* describes him of a Greenish Complexion, wearing a White Crown : signifying thereby the Spume and Froth of the Sea.

VI. *Glauco* (another Sea God) saith *Philostratus*, hath a long white Beard and Hair, soft and dropping about his Shoulders, his Eyes green and glistering ; his Brows full of wrinkles, and green spots ; his Brest all overgrown with greenish Sea-weed, or Moss, his Belly, and from thence downwards, Fish-like, full of Fins and Scales.

VII. *Galatea* (a Sea Goddess) is described (by the said *Philostratus*) to be drawn in a strange framed Chariot, by two mighty Dolphins, which were guided by two Silver Reins held in the hands of old *Triton's* daughters ; over her head, a Canopy made of Purple, Silk, and Silver, with her Hair hanging carelessly over her Shoulders. See her described as a Nymph, Chap. 32. Sect. 7.

VIII. *Oceanus*, (the Father of all the Sea Gods) saith *Thales Milesius*, is depainted, drawn on a glorious Chariot, accompanied and attended with a mighty company of Nymphs ; with the Face of an Old Man, and a long white Beard.

IX. *Æolus* is depainted with swoln blub Cheeks, like one that with main force strives to blow a blast ; two small Wings upon his Shoulders, and a fiery high Countenance.

He is called the God and Ruler of the Winds, whose descriptions are in Chap. 34. of this Book.

X. *Thetis* (another Sea Goddess) is depicted by the sixth Section of the two and thirtieth Chapter of this Book.

XI. *Neptune* is also depicted with long hoary Hair, in a Blue or Sea-green Mantle trimmed with Silver, riding in a Blue Chariot, or on a Dolphin of Brown Black Colour, with a Silver Trident in his hand.

C H A P. XVI.

How the Ancients depicted Nemesis.

I. **S**HE was by *Macrobius* described with **Wings on** her Shoulders ; hard by her side the **Rudder of a Ship**, she her self standing upright upon a round **Wheel** ; holding in her Right Hand a **Golden Ball**, in the other a **Whip**.

II. She is often depicted, holding a **Bridle of an Horse** in one hand, and in the other a **Staff**.

III. *Chrysippus* (as *Anlus Gellius* saith) describes her like a young **Virgin**, beautiful and modest, with an **Eye** prying round about her, for which cause the Ancients called her the all discerning **Lady**.

This Nemesis, as Pausanias and Ammianus Marcellinus say, was held to be the Goddess of Punishments, who castigates the offences of Malefactors, with Pains and Torments according to their Sins and Demerits ; and Rewarding the Vertuous with Honour and Dignities : She was the Daughter of Justitia (who dwells and inhabits very secretly within the House of Eternity, recording the offences of the wicked) and a most severe and cruel punisher of arrogancy and vain-glory. Macrobius saith, that this Nemesis was adored among the Egyptians (by them called also Rhamnusia) as the revenger and chief Enemy of Pride, Insolency, and Haughtiness ; and that she had erect and dedicated unto her, a most stately and magnifick Statue of Marble.

C H A P. XVII.

How the Ancients depicted Pan.

I. **P**AN (the God of Flocks and Sheep) is from the middle upwards in proportion like a **Man**, with his **Face** ruddy and sanguine, being very hairy ; his **Skin** and **Brest** covered with the **Skin of a spotted Doe or Leopard** ;

pard ; in the one hand a Shepherds Hook, in the other a Whistle : from the middle downwards the perfect shape of a Goat, in Thighs, Legs and Feet.

II. *Justine* saith, that *Pan's* Statue was made in a Temple in *Rome*, near the Hill *Palatine*, appearing to the view all Naked, saving that it was slightly enshadowed and covered with a Goats Skin.

Thereby is signified that (as it was reputed in those Days) Pan kept his habitation among Hills, Woods and Groves, who was indeed most of any Adored and Worshipped by Shepherds, as he that had the peculiar Care and Government of their Flocks.

III. Goat-ear'd Pan, his small tipt new grown horns
Advance themselves, about whose either side
A flow'ry Garland twines, and there adorns
His curled Temples with a wond'rous Pride.

His Face is of a high and reddish blush,
From which hangs down a stiff rough Beard or bush,
And for his Bodies vesture he doth wear
The finest skin of the most spotted Doe,
That ever any in those Woods did bear,
Which from his Shoulder loose hangs to his Toe.
And when he walks, he carries in his hand
A Shepherds Hook, made of a knotless Wand.

Servius saith, by the horns is signified either the Beams of the Sun, or New of the Moon, at what time she is Horned : his red Face signifies the Element of Fire : his long Beard, the Air : his spotted Garment, the Starry Firmament : his Shepherds Hook, the Rule and Government of Nature.

IV. After the form of *Pan* were the *Fauns*, *Sylvans*, *Satyrs* and *Fairies* set forth, having little short horns growing on their heads, with small ears and short tails.

These are held among some people in very great regard and observance, being of a wonderful speed in running. Plutarch writeth, that there was one of these brought and presented for a rare gift unto Sylla, as he returned from the Wars against Mithridates.

V. *Plato* understandeth by *Pan*, Reason and Knowledge ; which is twofold ; the one of a Man, the other of a Beast : by the upper part of *Pan*, he signifies Truth, accompanied with Reason, which being Divine, lifteth Man up

up towards *Heaven* : by the lower parts of him is signified the Falleness, Beastliness and Rudeness of those, who living here in the World, are only delighted with the Pleasures and Foolish Vanities thereof.

C H A P. XVIII.

How the Ancients depicted Pluto.

I. **M***Artianus* saith, that *Pluto* sitteth (in the lower Region) Majestically in a Chair, holding in one of his Hands a black Imperial Scepter, and on his Head a stately Crown ; at whose Left Hand sitteth his Wife *Proserpina*, attended with many Furies, and Evil Spirits, and at whose Feet lieth chained the Dog *Cerberus*.

II. The Ancients also have painted him in a Chariot, drawn with four furious black Horses, from whose fiery Nostrils proceedeth thick and ill-favoured Smoak, as *Claudianus* saith.

III. Some say, that his Head is encircled with a Garland of Cypress leaves ; others with *Narcissus* leaves.

The first shew Sadness and Horror, used in Burials, and about the Dead : the other more grateful, and are used in memory of the untimely Death of that Youth.

IV. *Charon* (*Pluto's* Ferriman, which carries Souls over the three Rivers of Hell, *Acheron*, *Cocytus*, and *Stryx*) is described old, yet exceeding strong, with a black Mantle hanging loosely over his Shoulders, as *Boccace* and *Servius* say.

By Charon is understood time ; and whereas he is supposed to have the transportation of Souls from the one side of those Rivers to the other ; thereby is signified, that time, so soon as we are born and brought forth into the World, doth carry us along by little and little unto our deaths ; and so setteth us over those Rivers, whose names, by interpretation, signifie Sorrowfulness, for that we pass this Life with Misery and Adversity.

V. He is also depicted with long curled black Hair ; in a Robe of Cloth of Gold.

C H A P. XIX.

How the Ancients Depicted the Parcæ, or Sisters.

I. **T**HE Sisters, which are called *Parcæ*, are said to attend upon *Pluto*, which are three, and are called *Clotho*, *Lachesis* and *Atropos*.

II. *Clotho* takes the charge of the Births and Nativities of Mortals: *Lachesis* of all the rest of their Life; and *Atropos* of their Death, or Departure out of this World.

III. They are all three depicted sitting on a row, very busily employed in their several Offices; the youngest Sister drawing out of a Distaff a reasonable big Thread: the second winding it about a Wheel, and turning the same, till it becomes little and slender: the eldest (which is Aged and Decrepit) stood ready with her Knife, when it should be Spun, to cut it off.

IV. And they are described to be invested with white Veils, and little Coronets on their Heads, wreathed about with Garlands made of Flowers of *Narcissus*.

C H A P. XX.

How the Ancients Depicted Minerva, or Pallas.

I. **M***inerva*, (as taken for *Bellona*) as *Licophrones* saith, was depicted with a flaming Fire-brand in her Hand by the Ancients.

II. Most Writers have described *Minerva* in the shape of a young Woman, of a lively and fresh Countenance, yet of an angry look, fix'd steadfast Eye, of a blewish green colour, compleatly armed at all Weapons, with a long Spear in the one Hand, and in the other a Crystal Shield, or Target: upon her Helmet a Garland of Olive Branches, and two Children, *Fear* and *Horror* by her side, with naked Knives in their Hands, seeming to threaten one another.

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Chap. 21. Of Depicting Vulcan. 347

III. *Pausanias* saith, that in *Greece* the Statue of *Minerva* was made with an *Helmet*, on the top of which was the Shape of a *Sphinx*; and on the sides thereof two Carved *Griffins*.

IV. *Phidias* making her Statue in *Greece*, placed on the top of her *Helmet* the form of a *Cock*.

V. She was also painted in *Greece*, sitting on a *Stool*, and drawing forth little small *Threads* from a *Distaff*; for that the *Ancients* supposed her to be the *Inventress* of *Spinning*, and the like.

VI. Lastly, She is depicted with a blew *Mantle* Embroidered with *Silver*: and is called the *Goddeſs* of *Wisdom*.

C H A P. XXI.

How the Ancients Depicted Vulcan.

I. *Vulcan* is depicted standing, working and hammering in a *Smiths Forge*, on the *Hill Aetna*, framing *Thunderbols* for *Jupiter*, and fashioning *Arrows* for the *God of Love*. The *Opinions* which the *Ancients* had of *Vulcan* were various, in which respect he is shaped sometimes in one form, sometimes in another.

II. Some make him *Lame* of one *Leg*, of a very black and swarthy *Complexion*, as it were all *finoaky*; of a general ill shaped proportion in all his *Lineaments*; and because that he is the *Husband* of *Venus*, often depicture her with him.

III. *Alexander Neapolitanus* relateth, that in one place of *Egypt* was erected the Statue of *Vulcan*, which held in one of its *Hands* the true and lively *Proportion* of a *Mole*, and in his other *Hand* a *Thunderbolt*.

The *Mole* was so placed, because they thought he sent unspeakable numbers of *Moles* among them, as a *Plague* to them, which did eat, gnaw and destroy every thing which was good.

IV. He is also painted *Lame* in a *Scarlet Robe*.

C H A P. XXII.

How the Ancients Depicted Bacchus:

I. **P***hilostratus* saith, that his Statue was framed in the likeness of a young Man without a Beard, of a corpulent and gross Body, his Face of an high colour and big; about his Head a Garland of Ivy Leaves; upon his Temples two small Horns; and close by his Side a certain Beast, called a *Leopard* or *Panther*.

This Description is drawn from the nature of Wine, (of which, as the Poets feign, Bacchus is the God) whose Inventer and Finder out was certainly Noah, which not only Moses, but also Josephus and Lactantius specially affirm; wherefore some suppose him to be this God Bacchus.

II. *Claudianus* saith, that his Image or Statue is made all naked; thereby shewing the Nakedness of those which abuse themselves with Wine, by which they reveal and open those things which ought to be concealed and kept hid.

III. *Diodorus Siculus* saith, that *Bacchus* among the *Grecians* was depicted in two several forms, the one of a very aged Man, with a long Beard, stiff and thick, the other of youthful years, of a pleasant and amorous Aspect.

By the first is shewed the effects of the intemperate Use of Wine, which overcomes Nature, and brings with it old Age: by the other, how it Cherishes and Revives the Heart, used moderately.

IV. *Macrobius* saith, that *Bacchus* was framed sometimes in the likeness of a young Child, sometimes of a Youth, sometimes of a Man; and sometimes in the likeness of decrepit old Age.

By these was signified the four Seasons of the Year, the Vine being dedicated to Sol, in whom they all exist.

V. This Picture was made in the likeness of a Bull, among the *Cyrenians*, (a People Inhabiting the farther part of *Persia*.)

The reason hereof was, because Proserpina (the Daughter of Jove) brought him forth in that form.

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VI. *Philostratus* saith, that *Bacchus* was oftentimes drawn cloathed in Womens Garments, and in a long purple Robe; wearing upon his Head a Coronet of Roses, with Companions and Followers, all of them in like loose and wanton Garments, fashioning themselves some like Rural Nymphs, as the *Dryades*, *Oreades*, &c. some like Sea Nymphs, as the *Nereides*, *Syrens*, &c. some like *Satyres*, *Fauns* and *Sylvans*, &c.

The Womens Garments shew, that Wine makes a Man Faint, Feeble and Unconstant, like to a Woman.

VII. *Pausanias* saith, that among the *Eleans*, the Picture of *Bacchus* was made with a long Beard, and cloathed with a long Gown hanging to the Feet; in one Hand a sharp Hook, and in the other a Bowl of Wine, and round about him many Vine-trees and other fruitful Plants.

VIII. The Statue of *Bacchus* also was sometimes set forth and adorned with Coronets made of Fig-tree Leaves, in Memory of a Nymph (as some say) called *Psyche*, which was by the Gods Metamorphosed into that Plant.

In like manner the Nymph Staphilis (on whom Bacchus was also Enamoured) was Transformed into the Vine, from whence it is that those Plants are so exceeding grateful and pleasant unto this God.

IX. He is painted also with short brown curled Hair, with a Leopards Skin, or in a green Mantle, a tawny Face, with a Wreath of Vine Branches.

C H A P. XXIII.

How the Ancients Depicted Fortune.

I. Fortune was depicted by some with two Faces, one white and well-favoured; the other black and ugly.

And this was, because it was held, that there were two Fortunes, the one good, from whom came Riches, Happiness, Quiet, Content and Pleasure: the other bad, from whom came Wars, Afflictions, Crosses, Disasters, Calamities, and all other Miseries whatsoever.

II. The *Thebeans* made her in the shape of a Woman; in one of her Hands a young Child, to wit, *Pluto* or *Riches*.

So that in the Hands of Fortune, they put the disposing of Wealth, Honour, Glory, and all Happineses.

III. *Martianus* describes her a young Woman, always moving; covered with a Garment of the thinnest Silk; her steps uncertain, never resting long in a place; carrying in her spacious Lap the universal fulness of the Treasures, Riches, Honour and Glory of this World; which in hasty manner (with her Hand) she offers; which Offer, if not instantly received, was utterly lost; in her Right Hand a white Wand, with which she smites such as Offend her, slight her Kindness, or are not nimbler enough to receive them. An old Poet thus sung:

Oh cruel Fortune, Stepdame to all Joys,
That disinherit us from sweet Content,
Plunging our Hopes in troubled Seas annoys;
Depriving us of that which Nature lent!
When will thy proud insulting Humour cease,
To assuage the Sorrows of an only one?
That free from care, us Soul may live in peace,
And not be Metamorphos'd into Stone.
But why entreat I thy unstable Heart,
Knowing thy greatest Pleasure, thy Delight
Consists in aggravating Mortals Smart
Poison'd with Woes, by Venom of thy Spight?
'Tis what thou wilt, must stand, the rest must fall,
All Humane things pay Tribute to thy Might:
And this must rise, when pleaseth thee to call,
The other Perish in a woeful Plight.
And this is it, that chokes true Virtues Breath,
Making it Die, though she Immortal be:
Fruitless it makes it; subject unto Death,
To fatal Darknes, where no Eye can see.
Oh come you wounded Souls, conjoin with me;
In some adumbrate Thicket let us dwell,
Some place which yet the Heavens ne'r did see,
There let us build some despicable Cell.
Strength, Beauty perish: Honours fly away:
And with Estates, Friends vanish and decay.

IV. In a Temple in Greece, *Fortune* was made in the form of a grave Matron, clothed in a Garment agreeable to such Years, whose countenance seemed very sad ; before her was placed the Image of a young Virgin of a beauteous and pleasant Aspect, holding out her hand to another ; behind these, the Image of a young Child, leaning with one of its Arms upon the Matron.

The Matron is that Fortune, which is already past ; the young Virgin, that which now is ; and the young Child beyond them both, is that which is to come.

V. *Quintus Curtius* saith, that among the people of *Scythia*, *Fortune* was depicted in the form of a Woman without feet, having round about her at her right hand a number of little Wings.

VI. *Alexander Neapolitanus* relateth, that in Greece, her Image was made wholly of Glass ; to shew that her favours are brittle, and subject to sudden decays.

VII. *Cebes* the Philosopher resembled *Fortune* unto a Comedy, in which many Actors appear often, as Kings and great Monarchs ; and presently after become poor Fishermen, Slaves, Bond-men, and the like.

VIII. *Socrates* compared her to a Theatre, or Common Meeting Place, where without all Order or Observation Men take their Places and Seats, without respect to the Dignity of any.

Hereby is shewed, that she (without respect of birth, worth, merit or state,) blindly, unadvisedly, and without any order or reason, bestows felicities, riches and favours.

IX. In *Egira*, a City of *Achaia*, *Fortune* was drawn in the shape of a Beautiful Woman, who held in one of her hands a *Cornucopia* ; in the other, the Boy *Cupid*.

By which is signified (as Pausanias saith) that Beauty without Riches avails nothing ; and indeed I may say he is doubly fortunate, who in his Love enjoys the fruition of both Beauty and Riches : but he is happy in the Superlative Degree, who, with the other two, meets with Vertue and Love also.

X. *Giraldus* saith, that *Fortune* was with some depicted riding on a Horse galloping ; with which swiftness she seems to pass invisible, after whom followeth *Destiny* with great wrath and fury, holding in her hand an Iron Bow, and aiming to strike *Fortune* at the heart.

By her swift galloping, is signified her mutability. See Sect. 4. Chap. 28. where she is taken for one of the Powers.

C H A P. XXIV.

How Vertue, Truth, Peace, Honour, Fame and Opinion, were depicted.

I. **V**ertue in Greece was made in the form of a *Pilgrim*, like a grave and austere Woman ; sitting alone upon a four squared Stone, Melancholly, and leaning her Head upon her Knees.

Being a Pilgrim, shews she hath no resting place, secure abode, or certain habitation upon the Earth : the form of her sitting, shews her life to be full of troubles, dangers, crosses, and miseries. See Sect. 1. Chap. 30. of this Book.

Hæc angusta via horrendis scatet undique monstis,
Et vita innumeris est interclusa periclis.
Sed tamen incolumes hac virtus ducit alumnos,
Extrema ut vitent, ne pes hinc inde vacillet.
Proclamat longe spes, hic sunt digna laboris
Præmia, & excipient mordaces gaudia curas.
Pax, sincera quies nullo temeranda dolore,
Lætitia hic, habitant longum, sine fine, per ævum.

*Fierce Monsters do this narrow passage bound,
And deadly dangers it encompass round.
Yet Vertue doth her Followers safely guide,
Lest they should go astray on either side.
And Hope proclaims afar ; lo here you shall
Have Joy for Sorrow ; Honey for your Gall.
Here Peace and Joyful Rest for ever dwell,
Which neither Cross nor time shall ever quell.*

II. *Truth*, saith *Hippocrates*, was framed in the similitude and likeness of a Beautiful Woman, attired with Gravity and Modesty : *Philostratus* saith that she remaineth in the Cave of *Amphiarus*, clothed all in white Garments of a Beautiful hue : *Lucianus* saith, that her Statue was made in the form of a young Woman, habited in rags, and base attire, with a Superscription over her Head, how she was wronged and abused by *Fortune*.

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V. Chap. 25. *Of depicting Silence, Sleep, &c.* 353

III. *Peace*, saith *Aristophanes*, was framed in the shape of a young Woman, holding between her Arms the Infant *Pluto*, the God of Riches, and Ruler of the lower Regions.

She is also called Concordia, and is a special friend to the Goddess Ceres, from whom comes the encrease of Fruits, Corn, and other nutriments. See Chap. 28. Sect. 4.

IV. *Honour* is depicted with two Wings on its Shoulders; which, as *Alciatus* saith, was made in the form of a little Child, clothed in a purple Garment, having a Coronet or Wreath of Laurel about his Head; holding hand in hand the God *Cupid*, who leads the Child to the Goddess *Vertue*, which is depainted right over against it.

V. *Fame* is Painted like a Lady, with great Wings, and seeming to proffer a flight, and to mount from the Earth, and rove abroad: having her Face full of Eyes; and all over her Garments an infinite number of Ears and Tongues. *See the XXI. Section of the twenty ninth Chapter of this Book.*

VI. *Opinion*, saith *Hippocrates*, resembles a young Woman, not altogether so fair and lovely as *Truth*, yet not deformed, or ill proportioned; being rather impudent than modestly bold in her demeanour, with her hand stretched forth to take whatsoever is offered and presented to her.

C H A P. XXV.

How Night, Sleep, Silence, Pleasure and Fear, were depicted.

I. **N**ight (the Mother of *Sleep* and *Death*) was depicted by the Ancients in form of an old Woman, having two great Wings growing on her shoulders, all coal black, and spread abroad, as if she seemed to offer a flight; and that she is drawn in a Chariot, whose Wheels are made of Ebony: having a sad Countenance, and an upper Garment of a deep black, spotted all over with Silver spots like Stars, as *Boccace* saith,

She is also depicted like an old Woman in a black Mante, spotted with Stars of Gold.

II. Sleep, (the Brother of Death) saith *Hesiod*, was Painted of a most sower, lowring and sad Aspect; aged, and holding in her left hand a young Child; very beautiful; and in her right, another Child, of a most swarthy, black and dull Complexion, with Legs and Arms very crooked. *Philostratus* in a Tablet (which he made for *Amphiarus*) makes her like an aged Woman, slothful and sluggish, clothed with several Garments, the under black, the upper white, holding in one of her hands, a Horn, pouring forth Seed.

By the Garment is signified Night and Day; by the Seed, Rest, Ease and Quiet.

III. *Harpocrates* (the God of Silence) called in Greek, *Sigaleon*, was made, as *Martianus* and *Apuleius* say, in likeness of a young Child, who close to his Lips held one of his Fingers, as a sign of Secrecy. Some pourtraict him without any Face at all; all covered with the skin of a Wolf, painted full of Eyes and Ears:

Shewing it to be good to See and Hear much, but to speak little.

IV. *Voluptia* or Pleasure, was depainted a Lady, having a pale and lean Countenance, sitting in a Pontifical and Majestick Chair, Embroidered and Embossed with Stars of Gold, Treading and Trampling upon Vertue.

V. Fear, saith *Pausanius*, was shaped in several forms by the Ancients; sometimes with the Head of a Lion among the *Grecians* (as on the Shield of *Agamemnon*;) and sometimes with the deformed Face and Body of a Woman.

The *Corinthians* dedicated this Picture so made unto the Sons of *Medea*; which were slain for bringing such fatal gifts to the Daughter of old *Creon*, whereby she, and all that Regal Family perished, and were for ever Extinct.

C H A P. XXVI.

How the Ancients depicted several Wisemen, Philosophers, Lawgivers, Emperours, Kings and Queens.

I. *Sidonius Apollinarius* in the ninth Epistle of his ninth Book, saith, that the Philosopher *Zensippus* was Painted with a crooked Neck : *Aratus* with a Neck bowed downwards : *Zeno* with a wrinkled Forehead.

II. *Epichrus* was painted with a smooth skin : *Diogenes* with a hairy rough Beard : *Socrates* with whitish bright Hair.

III. *Aristotle* was painted with a stretched out Arm : *Zenocrates* with a Leg somewhat gathered up : *Heraclitus*, his Eyes shut with crying.

IV. *Democritus* with his Lips open, as laughing : *Chrysippus* with his Fingers close pressed together, for numbering : *Euclid* with his Fingers put asunder, for the space of measures.

V. In some ancient Bibles, and many Pictures *Moses* is described with horns.

"The ground of this absurdity was a mistake of the Hebrew Text, in that of *Moses* descending from the Mount, upon the nearness of the words, קֶרֶן *Keren*, "Cornu, an horn, and קָרָן *Karan*, *Luceo*, to shine. The "vulgar Translation (of *Exodus* 34. 29. 35.) agrees with "the former, to wit ; *Ignorabat quod cornuta esset facies ejus. Qui videbant faciem Moïsis esse cornutam.* The "Translation of *Paulus Fagius* is otherwise, viz. *Moses nesciebat quod multus esset splendor gloriæ vultus ejus. Et viderant filii Israel, quod multa esset claritas gloriæ faciei Moïsis.* Tremelius and Junius have it thus, *Ut ignoraret Moïsche splendidam esse factam cutem faciei sue. Quod splendida facta esset cutis faciei Moïchis : agreeing with "the Septuagint, δεδόξαται ὁ ὅψις τοῦ χροῦατος τοῦ προσώπου, "glorificatus est aspectus cutis seu coloris faciei.*

VI. But *Moses* is generally depicted with bright Hair, a very beautiful Visage, with radiant Scintillations about his Head, in form of Hoariness, which in Painting is called Glory.

VII. *Alexander* the Great, with brown Hair, and a ruddy Complexion, riding upon his Horse ; but by some riding upon an Elephant.

The reason of this is hard to be discerned ; for as much as I find not in History, that ever he used that beast in his Armies, much less in his own Person : except it were for that remarkable battel which he fought with Porus King of India, wherein were many Elephants : In which himself (as Curtius, Arianus and Plutarch relate) was on Horseback, the name of which Beast yet lives, and is famous in History to this day.

VIII. *Numa Pompilius* with white Hair Crowned with a Silver Bend or Diadem ; his Robe Crimson, trimmed with Gold ; his Mantle Yellow, trimmed with Silver ; his Buskins Watchet and Silver.

IX. *Aeneas* the Trojan Prince in a Purple Mantle trimmed with Gold.

X. *David* (the King of Israel) with Brown Hair, a ruddy Complexion, and a long Beard.

XI. *Elizabeth* Queen of England, pale Faced, light brown Hair, and gray Ey'd.

XII. *Dido* Queen of Carthage in a Purple or Scarlet Mantle, her Under-garments Purple ; a Golden Quiver ; Hair Yellow, tyed up with Spangles and Knots of Gold.

XIII. *Gustavus Adolphus* King of Sweden with Yellow Hair.

XIV. *Mahomet* the Turks great Prophet in Garments all of Green.

XV. *German Emperours* in a Violet-coloured Robe, Watchet, or Light-coloured.

XVI. *Roman Emperours*, with Yellow Carrusters Embroidered with Silver ; the Labels of their Sleeves, and short Bases of Watchet ; the under Sleeves, and long Stockings White ; a Laurel Wreath, with a Silver Jewel before ; and Rays of Gold issuing from the Wreath.

XVII. *Pythagoras* in White Garments with a Crown of Gold.

XVIII. *Empedocles*, in Violet, Murry, or Purple, and so generally the rest of the Grecian Philosophers.

XIX. *Erasmus Roterdamus*, Yellow Hair'd, gray Ey'd, and somewhet Pale.

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XX. The *Virgin Mary* is commonly represented in Purple and Azure : *John the Evangelist* in Scarlet : *John Baptist* in a Hairy Mantle : The rest of the *Apostles*, in Green or Crimfon.

C H A P. XXVII.

The Painting of the Sibyls.

I. *Sibylla Agrippina*, a Woman in Years, in a Roseal Garment. She is by divers Authors called *Aegyptica*. *Suidas* writes, that she Prophefied in *Aegypt* in the days of *Pharaoh* : She Prophefied thus, *That hands should be laid on the invisible Word, his Beauty shall not appear, his Mothers Womb shall enclose him, and He (who is Eternal Joy) shall Weep.*

II. *Sibylla Libyca*, an Elderly Woman, Crowned with a Garland of Flowers, in Purple Garments. She was Born in *Libia*, (otherwise called *Eliffa*) and lived in the time of *Euripides* : *Lactantius* gives her the second place among the *Sibyls* for her admirable Predictions, viz. *The time draws on, and is not far off, when the God of Light shall be environed with the radiant beams of the Sun.*

III. *Sibylla Delphica*, with a Black Garment, a young Woman with a Horn in her Hand. She was so called, because she was Born at *Delphos*. She lived before the Siege of *Troy*, and foretold the manner of that War : and Prophefied of Christ thus ; *Know him for thy Lord, who is the Son of God ; a Pcophet shall be Born of a pure Virgin without the Seed of Man.*

IV. *Sibylla Phrygia*, in red Garments, having an old Saturnian hard favoured Face. She is supposed by many to be *Cassandra*, and Prophefied very Divinely of the day of Judgment. *A Trumpet (said she) from Heaven shall give a very terrible and dreadful sound ; all Kings shall stand before the Judgment Seat of God, who will at once Judge both Just and Unjust.*

V. *Sibylla Herophila*, a young Woman, very fair, in a Purple Garment, and Head covered with a Vail of Lawn. She was also called *Eriubrea*, who (as *Apollo-dorus*

dorus Erithreus says) was a Citizen of *Erithrea* in *Ionis*; she Prophesied to the *Greeks*, that they should overcome *Troy*: and also of *Christ*, That the *Earth* shall sweat as a token of Judgment; a King shall come from *Heaven*, whose Kingdom shall be Everlasting.

VI. *Sibylla Europea*, a comely young Woman, having a high, red-coloured Face, a fine Vail on her Head, and clad in a Garment of Gold work. It is said, that she was Born in *Jerusalem*, but the place of her Birth is not certainly known: She Prophesied thus; *The Almighty* shall come accompanied with his Legions of Angels, he shall walk over the Hills and Clouds, he shall live Poorly, and in Silence shall he bear rule.

VII. *Sibylla Persica*, with a White Vail, and a Golden Garment. She lived in the CXX. Olympiade, and was Born in a Town called *Noe*, by the Red Sea: She Prophesied thus: O Death, thou shalt be trodden under foot; the Son of God shall be Born into the World, and he shall bring to Man Salvation: the Invisible Word shall be made Visible.

VIII. *Sibylla Samia*, a middle aged Woman, clothed in Willow weeds, having a Palm in her hand. She was Born at *Phiton* in the Isle of *Samos* in the *Aegean* Sea, near *Thrace*: *Cassiodorus* says, she Prophesied 665. Years before the Birth of *Christ*, and yet Prophesied as though she had lived in his days; viz. O ill advised and indiscreet People of *Judea*, who did not turn to the Lord your God: you have not truly known him, but have Crowned him with Thorns; and given him Gall to drink.

IX. *Sibylla Hellepontica*, a young Woman in green Garments, with a round, lovely, fresh coloured Face; holding in her Left Hand a Book; and in her Right Hand a Pen. She was Born in the Territories of *Troy*, in a place called *Marmissia*, near the Town of *Gergitha*: *Heraclides Ponticus* says, that she lived in the Days of *Solon*, and Reign of *Cyrus*, about the LX. Olympiade: She Prophesied thus; Be comforted, O Nations, call upon your God, your Iniquities shall be forgiven, and you shall find Mercy at the hands of the Lord.

X. *Sibylla Tiburtina*, an old Woman in Purple Garments, of a hard Visage, holding in her Apron the Books of the Sibyls. She was Born in *Italy*, in a Town near *Rome*, upon the Banks of the *Tyber*, from whence she took

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Chap. 28. *Painting Arts, Vertues, &c.* 359

took her name: She Prophesied, viz. *A Branch shall bud from a sweet Root, a Flower shall spring from thence; and the Spirit of the Lord shall rest upon it.*

XI. *Epirotica*, called also *Cimmeria*; she is Painted like an old Woman in a Grotto, with a hard favoured Face, and in purple or dark coloured Cloths. She was said to be Born near the *Bosphorus*; but others say in *Cimmeria*, a Town of *Campania* in *Italy*: She Prophesied a while after the destruction of *Troy*, thus; *That a Virgin should bring forth a Son, without the help of a Man, and nourish him with the milk of her Breasts.*

XII. *Cumana*; she is Painted like a grave Matron, with a Veil, and in blue coloured Robes, hiding her feet. She was Born in *Cuma*, a Town of *Campania*, in *Italy*, and lived in the LV. Olympiade, in the time of *Numa Pompilius*, and *Tarquinus Superbus*: She Prophesied thus; *After three Days (says she) he shall triumph over Death, return to the Light, and be the first who shall give Evidence to the Resurrection, thereby to strengthen the Faithful in the Hope of Eternal Life.*

XIII. These Sibyls for their Prophecies of Christ are in high esteem: they are Ten in number, as *Varro* saith; yet others make Twelve, of which we are not satisfied; *Boyardus* in his Treatise of Divination, besides these Ten, addeth Two others, *Epirotica* and *Cumana*.

XIV. Some, as *Martianus*, will have but Two; *Pliny* and *Solinus*, but Three; *Ælian* Four; and *Salmasius* but the first Seven. They are generally described as young Women, yet some were old, as she that sold the Books unto *Tarquin*, from whence we conclude the *Licentia pictoria* is very large.

C H A P. XXVIII.

The Painting of Arts, Vertues, Passions, and Minor Gods.

I. **A** *Richmetick* is painted in cloth of Gold: *Geometry* fallow faced; a green Mantle fringed with Silver, and a Silver wand in her right hand: *Astronomy* with a Silver

Silver Crescent on her Fore-head, an Azure Mantle, a Watchet Scarf, with Gold Stars.

II. *Faith* is painted in white Garments, with a Cup of Gold : *Hope* in blue, with a Silver Anchor : *Charity* in yellow Robes ; on her head a tyre of Gold with precious Stones ; her Chair Ivory.

III. *Religion* in a Silver Vail, with a Garment or Mantle of white : *Justice* in a white Robe, and a white Mantle ; with a Coronet of Silver, and white Buskins : *Innocency* in white.

IV. *Concord* in a Sky-coloured Robe, and a Yellow Mantle ; *Peace* in White, scattered with Stars, or a carnation Mantle fringed with Gold, a Vail of Silver, Green Buskins, and a Palm in her hand in black : *Unanimity* in a blue Robe, Mantle and Buskins ; with a chaplet of blue Lillies.

V. *Wisdom* in a white Robe, blue Mantle, seeded with Stars : *Law* in purple Robes, seeded with Golden Stars ; a Mantle of Carnation fringed with Gold ; purple and yellow Buskins : *Government* in Armour.

VI. *Watchfulness* in a yellow Robe : a fable Mantle fringed with Silver, and seeded with waking Eyes ; a chaplet of Turnsole ; in her Right Hand a Lamp ; in her Left, a Bell : *Confidence* in a parti-coloured garment : *Modesty* in blue.

VII. *Eternity* in blue, seeded with Golden Stars ; the *Soul* in white Garments, branched with Gold and Pearl ; and Crowned with a Garland of Roses ; *Felicity* in purple trimmed with Silver.

VIII. *Love* in Crimson fringed with Gold, a flame-coloured Mantle, a chaplet of red and white Roses : *Natural Affection*, in Citron colour : *Envy*, in a discoloured Garment full of Eyes.

IX. *Joy*, in a green Robe, and a Mantle of divers colours, embroidered with Flowers ; a Garland of Myrtle ; in her Right Hand a Crystal Cruise, in her Left a Golden Cup : *Pleasure* in light Garments, trimmed with Silver and Gold : *Laughter* in several colours.

X. *Wit*, in a discoloured Mantle : *Follity*, in flame colour : *Pastime* in purple trimmed with Gold.

XI. *Opinion* in black Velvet, black Cap, with a white fall : *Impudence*, in a party-coloured garment : *Audacity*, in bluish colour.

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Chap. 28. *Painting Arts, Vertues, &c.* 361

XII. *Honour*, in a purple Robe, wrought with Gold :
Liberty, in white : *Safety*, in Carnation.

XIII. *Cupid* was painted (by *Zeuxis*) in a green Robe :
Hymen in long yellow hair, in a Purple or Saffron coloured Mantle : *Triton* (*Neptunes* Trumpeter) with a blue Skin, in a purple Mantle.

XIV. *Urania*, in a Mantle of azure, filled with Lamps :
Astrea the Goddess of Justice, in a Crimson Mantle, trimmed with Silver : *Graces* all alike, as Sisters, in Silver Robes.

XV. *Tellus*, the Goddess of the Earth in a green Mantle : *Ceres*, with yellow hair, and a straw-coloured Mantle trimmed with Silver : *Vesta*, daughter of *Saturn*, in white Garments filled with flames.

XVI. *Flora* in a black Mantle, of divers colours : *Proserpine* in a black Mantle trimmed with Gold flames : *Echo*, (the Goddess of the Air, and Daughter of Speech, the intirely beloved of *Pan*) is an invisible Goddess.

XVII. *Ansonus Gallus* reporteth that she hath oftentimes disswaded, and reprehended such, who would undertake to depaint her, and repeats the same in an Epigram, whose sence in *English* is this :

*Surcease thou meddling Artist thy endeavour,
 Who for thy skill hast reapt such long liv'd fame :
 Strive not to paint my Body, Shape, for never
 Did any humane Eyes behold the same.
 In concave Caverns of the Earth I dwell,
 Daughter o'th' Air, and of each tatling Voice,
 In Woods and hollow Dales I build my Cell,
 Joying to re-report the least heard noise,
 To grief oppress'd, and Men disconsolate,
 That tell each Grove their Souls vexation,
 Their dying Agonies I aggravate,
 By their dole accents iteration.
 And he that will describe my form aright,
 Must shape a formless sound, or airy sprite.*

C H A P. XXIX.

To express the Powers.

I. **E**Ternity, It is expressed in the form of a fair Lady, having three heads, signifying Time past, present, and to come ; in her left hand a Circle, pointing with the Forefinger of her right hand up to Heaven : the Circle signifies she hath neither beginning nor end.

II. In the Medals of Trajan, she was figured red, sitting upon a Sphear, with the Sun in one Hand, and the Moon in the other : (by her sitting is signified perpetual constancy.)

III. In the Medals of Faustina, she is drawn with a Veil, and in her right hand the Globe of the World.

IV. Boccace, writing of the Progeny of the Gods, saith, that the Ancients derived it from Demogorgon, as the principal and first of them all, who inhabited in the Middle or Center of the Earth, encircled round about, and circumvested with a dark and obfuscate Cloud, breathing from his mouth a certain liquid humidity.

But however what Eternity is, the name doth clearly discover, containing in it self all Worlds and Ages, and not limited, or measured by any space of time.

V. Claudius describes it by a Serpent that encompasseth round with her Body, the Cave or Den wherein it lieth, so as making a Circle, she holds in her mouth the end of her tail, which with the Egyptians was the Emblem of a year.

*All in a Circle thus she sits involv'd,
Whose firm tenacity is ne'r dissolv'd :
She sends forth times, and them recalls again,
Ages to come, and past she doth retain.*

VI. But according to Boccace, as Eternity hath an absolute command over all times, so she lives far hence in some remote and unknown Vale, where humane steps never approached, but is even unfound out of the Cælestial inhabitants, those happy Souls, who stand before the presence of the greatest, that only knows all things.

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VII. *Time*, It is drawn standing upon an old Ruine, winged, and with Iron Teeth. Or thus, An old man in a garment of Stars; upon his head a Garland of Roses, Ears of Corn, and dry Sticks, standing upon the Zodiack, with a Looking-Glass in his Hand; two Children at his Feet, the one Fat the other Lean, writing both in one Book; upon the Head of one the Sun, upon the other the Moon. Or thus, An old Man, Bald behind, Winged, with a Scythe and an Hour-Glass, having a lock of Hair on his Forehead.

VIII. *Fate*, a Man in a fair, long, flaxen Robe, looking upwards to two bright Stars encompassed with thick Clouds, from whence hangs a Golden Chain.

IX. *Fortune*, a Naked Lady, having an Ensign or Veil overshadowing her, standing upon a Globe or Ball.

Lactantius saith that *Fortune* is a vain, idle and senseless name, shewing forth Mans weakness in attributing any thing thereto: which Marcus Tullius confirmeth, where he saith, That this name of *Fortune*, was first brought in to cover the ignorance of Man. Alexander Neapolitanus saith, that in Præneste, in a Temple, she was depicted in the shape and form of two Sisters, both conjoined in one and the same Statue.

X. Pausanias saith, That her most ancient Statue was that which Bupalus made in Greece in shape of a Woman, upon whose Head was a round Ball, and in one of her Hands a Cornucopia, she is called the blind Goddess, and partial Lady, by reason of the bestowing of her unconstant and mutable Favours.

Imperious Ruler of the Worlds designs,
Lady of Solace, Pleasure and of Pains:
Like Tennis Balls thou beat'st us to and fro,
From Favours to Disgrace, from Joy to Woe;
From Wars to Peace, from Rule to be commanded:
But with unconstancy, thou now art branded.

XI. Macrobius saith she was set forth with Wings on her Shoulders, (to shew that she was always at Hand among Men) had by her side the Rudder of a Ship (to shew that she doth Rule and Command) her self placed upon a Wheel, holding in her Right Hand a Golden Ball, and in the other a Whip; shewing where she smiled, Wealth and Honour; and where she frowned, Crosses and Misery should follow.

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XII. *In Ægypt Fortune was depicted like a Lady turning a great Glass Wheel, on whose Top were many Men playing, others climbing up; and others having attained to, precipitating themselves, and falling down back again.*

XIII. *Equality, A Lady lighting two Torches at once.*

XIV. *Victory, is expressed by a Lady clad all in Gold, in one Hand a Helmet, in the other a Pomegranate: By the Helmet is meant Force, by the Pomegranate unity of Wit and Counsel.*

XV. *Augustus drew her with Wings ready to fly, standing upon a Globe, with a Garland of Bays in one hand, in the other a Coronet of the Emperor, with these Words, Imperator Cæsar.*

XVI. *In the Medals of Octavius, she is drawn with Wings, standing on a Base, in one Hand a Palm, in the other a Crown of Gold.*

XVII. *Peace, is drawn like a Lady, holding in her right Hand a Wand or Rod downwards towards the Earth, over a hideous Serpent of sundry colours; and with her other Hand covering her Face with a Veil, as loth to behold Strife or War.*

XVIII. *Trajan gave a Lady, in her Right Hand an Olive Branch, in her Left a Cornucopia. In the Medals of Titus, a Lady having in one Hand an Olive Branch, the other leading a Lamb and a Wolf coupled by the Necks in one Yoke. The Olive was always the Emblem of Peace.*

XIX. *Providence, A Lady lifting up both her Hands to Heaven, with these Words, Providentia Deorum. Or thus, A Lady in a Robe, in her Right Hand a Scepter, in her Left a Cornucopia, with a Globe at her Feet.*

XX. *Concord, A Lady sitting, in her Right Hand a Charger for Sacrifice, in her Left a Cornucopia, with the Word Concordia. Or thus, A fair Virgin, holding in one Hand a Pomegranate; in the other a Mirtle Bunch.*

The nature of these Trees are such, that if planted, though a good space one from another, they will meet, and with twining embrace one another.

XXI. *Fame, A Lady clad in a thin and light Garment, open to the middle Thigh, that she might run the faster; two exceeding large Wings; Garments embroidered with Eyes and Ears, and blowing of a Trumpet.*

XXII. *Destiny, A Lady, who with great fury, and exceeding celerity holds in her Hand an Iron Bow ready bent, aiming to strike Fortune even at the very Heart.*

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Destiny and Fortune can never agree ; and therefore as Fortune flies from Destiny, so Destiny pursues Fortune ; for where Destiny sets foot, there Fortune is, as it were, Incharnted and Conjured, as having no Power, Efficacy or Vertue.

C H A P. XXX.

Of Vertues and Vices.

I. **V**ertue is represented by *Hercules*, naked, with his Lyons Skin, and knotted Club, performing some one of his Labours ; as offering to strike a Dragon keeping an Apple-tree : or holding in his Hand three Golden Apples.

Hercules is nothing else but *Vertue*, his name in the Greek Tongue is *Ἡρακλῆς*, quasi *ἥρας κλεῖς*, Junonis gloria : vel quia *κλησῶντες ἥρας* celebrat aut commemorat Heroas, which is the property of *Vertue* : he is drawn naked to demonstrate her simplicity : by the Dragon is set forth all manner of Vices : by the Lions skin, magnanimity and greatness : by his Oaken Club, Reason and Policy : by its knottiness, the difficulty, pains and labour in seeking after *Vertue* : by the three Golden Apples, the three Heroical Vertues, Moderation, Content and Labour.

II. *Piety* is drawn like a Lady, with a sober countenance ; in her Right Hand she holdeth a Sword stretched over an Altar ; in her Left Hand a Stork ; and by her side is placed an Elephant and a Child.

The Stork is so called of *σβην*, the reciprocal or mutual love of Parent and Child, of which this Bird was ever an Emblem, for the love and care she hath of her Parents being old. The Elephant seems to Worship towards the rising of the Sun.

III. *Hope* is drawn like a beautiful Child in a long Robe hanging loose, standing upon Tip-toes, and a Trefoil, or Three-leav'd Grass in its Right Hand, in its Left an Anchor.

The loose Vestment shews, she never pincheth or binds Truth, standing on Tip-toes shews she always standeth dangerously ;

the branch of Trefoil shews Knowledge, (the ground of Faith) Faith (the ground of Hope,) and Hope it self.

IV. *Mercy*, a Lady sitting upon a Lion, holding in one hand a Spear, in the other an Arrow; which she seemeth to cast away.

In the Medals of Vitellius she sits with a branch of Bays in her hand, and a Staff lying by her.

V. *Justice*, a fair young Virgin, drawing after her, with her Left Hand, a black, hard, ill favoured Woman, haling her by main force, and striking her over the Face in a severe manner.

The young Virgin was Justice, the other Injuria: she is drawn young, and a Virgin, to shew, that Judges and Administrators of Law ought to be incorrupt and free from Bribes, Partiality or Flattery, but Just, Constant and Sincere.

VI. *Felicity*, a Lady sitting in an Imperial Throne, in the one hand she holdeth a *Caduceus* or Rod, in the other hand a *Cornucopia*.

VII. *Fruitfulness*, a Lady sitting upon a Bed, and two little Infants hanging about her Neck.

VIII. *Disimulation*, a Lady wearing a Vizard of two Faces, in a long Robe of changeable colour; and in her right hand a Magpye.

IX. *Security*, a Lady leaning against a Pillar, before an Altar, with a Scepter in her hand.

X. *Calumnia*, a beautiful, rich and young Woman, approaching towards a Judge, gorgeous in her habit, with an angry, scornful and discontented look, and red and fiery Eyes; she holds in her left hand a flaming Torch: and with her right she by force draws a young Man by the hair of the head.

XI. *Envy*, a wonderful lean old Man, with a pale and meagre face, in whose withered cheeks Age hath wrought deep furrows and wrinkles.

XII. *Penitence*, a Women in vile, ragged and base Attire, infinitely deploring her being: and bemoaning her self in passionate fits above all measure, continually weeping.

C H A P. XXXI.

Of Rivers.

I. **H**erein you ought to observe the Adjuncts and Properties of the same ; which consists in some notable Accident done near them ; some famous City, Trees, Fruits, or Reeds situate upon their Banks ; some Fish only proper to their streams ; or recourse of Shipping from all Parts of the World.

II. Therefore you had best place the City upon their Heads ; their Fruits in a *Cornucopia* ; Reeds, Flowers and Branches of Trees in their Garlands, and the like.

III. The River *Tiber*. It is expressed (in the *Vatican* at *Rome*) in a goodly Statue of Marble lying along (for so you must draw them) holding under his Right Arm a She Wolf, with two little Infants sucking at her Teats, leaning upon an Urn or Pitcher, out of which issueth its stream : In his Left a *Cornucopia* of delicate Fruits, with a grave Countenance and long Beard ; a Garland of Flowers upon his Head ; and resting his Right Leg upon an Oar.

IV. The River *Nilus*. It is seen (in the *Vatican*) cut out in white Marble, with a Garland of sundry Fruits and Flowers, leaning with his Left Arm upon a *Sphynx* ; from under his Body issueth its stream : In his Left Arm a *Cornucopia* full of Fruits and Flowers on one side, with Sixteen little Children, smiling and pointing to the flood.

The Sphynx was sometimes a Monster which remained by Nilus : the Crocodile ἀπὸ τοῦ κροκότου δειλιάει, from his hatred of Saffron ; the most famous Monster of Egypt : The sixteen Children, the sixteen Cubits of height, the uttermost of the flowing of Nilus : their smiling looks, the profit of it, which glads the hearts of the Sun-burnt Inhabitants.

V. The River *Tigris*. It was drawn like an old Man (as the rest) and by his side a Tiger.

This Beast was given as well for its fierce streams, as for the stone of Tigers which are there.

VI. The River *Ganges*. It bears the shape of a rude and barbarous Savage, with bended brows, of a fierce and cruel Countenance, crowned with a Palm, having, as other floods, his Pitcher, and by his sides a *Rhinceros*.

This River runneth through India, and hath its head from a Fountain in Paradise.

VII. The River *Indus*. It is drawn with a grave and jovial Aspect, with a Garland of its Countrey Flowers, by its side a Camel (from *χαμας*) it is represented pleasantly, grave, as an Emblem of the Indian Policy.

This is the greatest River in the World, receiving into its Chanel threescore other great and famous Rivers, and above an hundred lesser.

VIII. The River *Thamisis*. In the House of an Honourable Friend, I saw the *Thames* thus drawn: A Captain or Soldier lying along, holding in his Right Hand a Sword, and under his Arm the August Tower: in the other a *Cornucopia* of all fragrancies, with a Golden Chain which held four Crowns; and with this he encompassed the streams, from under which bending of his Left Arm they seemed to flow: his temples were adorned with Bays, the River was empaled on one side with Anchors, and on the other stood *Cesar's Augusta*.

IX. The River *Arnus*. It is a famous River in *Ialy*, drawn like an old Man leaning upon his Pitcher, pouring out water: upon his Head a Garland of Beech, by his right side a Lyon, holding forth in his dexter Paw a red Lilly or Flower-de-luce, the ancient Arms of the chief City of *Tuscany*.

By the Garland of Beech is set forth the great abundance of Beech Trees growing about Falerona in the Appennines, where Arnus hath his head.

X. The River *Po* or *Padus*. It is depicted with an Ox's face, having a Garland of Reeds or Poplar on his Head.

It is so called from the Sister of Phaeton, whom the Poets feign destroyed with Lightning, and drowned here: the head of the Ox, is from its horrid noise and roaring, whose crooked banks resemble the horns thereof; by the sides whereof grows much Reed, and many Poplars.

XI. The River *Danubius*. In an ancient Medal of the Emperour *Trajan*, it is depicted with its heads covered with a Veil.

It is so drawn, because its Head or first Spring is unknown, Aufonius saith,

Danubius perit caput occultatus in ore.

XII. The River *Achelous*. Ovid describes it with a Garland of Reeds, Willow, and the like : having two Urns or Earthen Pitchers, the one empty, the other casting out water ; and upon its head two horns, the one whole, the other broken.

This River, as it is the most famous of all Greece, so it divides Ætolia from Arcadia, and then falls into the Sea. This is fetch'd from the Fable of Hercules, who combated him in the likeness of a Bull, and broke one of his horns for Deianira's sake, there turning both its streams into one, whereupon one of the Urns is empty.

XIII. The River *Niger*. It is drawn like a *Black-Moor*, with Glory, or a Coronet of Sun-beams falling upon his Urn, having by its side a Lion.

By the Sun-beams and Black, is shewed the Clime, lying under the Torrid Zone, whose inhabitants are Blacks or Moors ; the Lyon is that which the Countreys Mauritania and Barbary breed, being the fiercest in the World.

C H A P. XXXII.

Of Nymphs.

I. **N**ΥΜΦΗ *Nympha*, a Bride (*from νύξ and αἶψα* as it were a fresh or new Creature : or as some will have it, *Nympha* quasi *Lympha*, by changing L. into N. after the Dorick dialect :) it is nothing else but an Allegory, from the Vegetative Humidity, which gives life to Trees, Herbs, Plants and Flowers, by which they grow and increase.

II. They are feigned to be the Daughters of the Ocean, the Mother of Floods, the Nurses of *Bacchus*, and Goddesses of Fields, who have the protection and charge of Mountains, Herbs, Woods, Meadows, Rivers, Trees, and generally of the whole Life of Man.

III. *First, Νῆπτα, Nymphs of the Mountains.*

Let them be drawn of a sweet and gracious Aspect, in green Mantles, girded about in the middle; and upon their heads Garlands of Honeysuckles, Wild-roses, Tyme, and the like; their actions, dancing in a Ring, making Garlands, or gathering Flowers.

They are so called from Νῆπτις the Top of an Hill, or woody Valley.

IV. *Secondly, Δρυάδες, Nymphs of the Woods.*

Draw these less fair than the former, of a brown or tawny Complexion, hair thick like Moss, and their Attire of a dark green.

They are so called from Δρῦς an Oak, having their beginning with Trees, and dying again with them.

V. *Thirdly, Ναιάδες, Nymphs of the floods.*

Draw them beautiful, with Arms and Legs naked, their Hair clear as Crystal; upon their Heads Garlands of Water-creffes, with red leaves: their actions pouring out water.

They are so called from Νεῖω to flow, or bubble, as water doth.

VI. *Thetis*, a Lady of a brown Complexion, her Hair scattered about her Shoulders, crowned with a Coronet of Periwinkle and Escallopp shells, in a Mantle of Sea-green, with Chains and Bracelets of Amber about her Neck and Arms, and a branch of red Coral in her Hand.

VII. *Galatea*, a most beautiful young Virgin, her Hair carelessly falling about her Shoulders like Silver threads, and at each Ear a fair Pearl; with a double string of them (sometimes) about her Neck and Left Arm; a Mantle of pure thin and fine white, waving, as it were, by the gentle breathing of the Air, viewing in her hand a sponge made of Sea-froth: *She is so called from γάλα, lac, milk.*

VIII. *Iris*, a Nymph with large wings, extended like to a Semicircle, the Plumes set in rows of divers colours, as yellow, green, red, blue or purple; her Hair hanging before her Eyes, her Breasts like Clouds, drops of Water falling from her Body, and in her hand *Iris*, or the Flower-de-luce.

Virgil makes her the Messenger of *Juno* (where she is taken for the Air) when he saith, *Iris de Caelo missa Saturnia Juno.*

IX. *Nympha Diana* ; Let them be cloathed in white Linnen to denote their Virginity, and their Garments girt about them ; their Arms and Shoulders naked ; Bows in their hands, and Arrows by their sides.

X. *Aurora*, the Morning. A young Virgin with carnation Wings, and a yellow Mantle ; in her Fore-head a Star, and Golden Sun-beams from the Crown of her Head, riding upon *Pegasus*, with a vial of Dew in one hand, and various Flowers in the other, which she scattereth upon the Earth.

C H A P. XXXIII.

Of the Nine Muses.

I. *Clio*, She is drawn with a Coronet of Bays ; in her right hand a Trumpet, in her left a Book, upon which may be written *Historia* ; her names is from Praise or Glory.

II. *Euterpe*, Is crowned with a Garland of Flowers, holding in each hand sundry Wind-instruments ; her name is from giving delight.

III. *Thalia*. Draw her with a smiling look, and upon her Temples a Coronet of Ivy, a Mantle of Carnation embroidered with Silver twist, and Gold spangles, and in her left hand a Vizard ; her Ivy shews she is Mistress of Comical Poesie.

IV. *Melpomene*. Draw her like a Virago, with a majestick and grave Countenance, adorn her head with Pearls, Diamonds and Rubies ; holding in her left hand Scepters with Crowns upon them, other Crowns and Scepters lying at her feet : and in her right hand a naked Poniard, in a Mantle of changeable Crimson. Her gravity befits Tragick Poesie.

V. *Polyphymnia*. Draw her acting a Speech with her Fore-finger, all in white, her Hair hanging loose about her Shoulders, of an Orient Yellow, upon her Head a Garland of the choicest Jewels intermixt with Flowers, and in her left hand a Book, upon which let be written *Memoria* ; her name imports Memory to whom the Rhetorician is beholden.

VI. *Erato*. She hath her name from *Ἔρως, Amor, Love*: draw her with a sweet and comely Visage, her Temples girt with Myrtles and Roses, bearing an Heart with an Ivory Key; by her side *Cupid*, winged, with a lighted Torch; at his Back, his Bow and Quivers.

VII. *Terpsicore*; a cheerful Visage, playing upon some Instrument; upon her head a Coronet of Feathers of sundry Colours, but chiefly green; in token of the Victory which the Muses got over the Syrenis, &c. by singing.

VIII. *Urania*. A beautiful Lady in an Azure Robe; upon her Head a Coronet of bright Stars; in her right hand the Celestial Globe, and in her left the Terrestrial. Her name imports as much as Heavenly; *Urania Calymotus scrutatur & Astra*.

IX. *Caliope*. Upon her Head draw a Coronet of Gold; upon her left Arm Garlands of Bays in store, for the reward of Poets; and in her right Hand three Books, upon which write *Homerus, Virgilius, Ovidius*.

The Muses had their names, as Eusebius saith, μετὰ τὸ μῦθεῖν, which is to instruct, because they teach the most honest and laudable disciplines.

C H A P. XXXIV.

Of the four Winds.

I. **E***urus*, the East-wind. Draw a Youth with puffed and blown Cheeks (as all the other Winds must be) Wings upon her Shoulders, his Body like a Tawny-Moor, upon his Head a Red Sun.

II. *Zephyrus*, the West-wind. Draw a Youth with a merry look, holding in his Hand a Swan, with Wings display'd as about to sing, on his Head a Garland of all sorts of Flowers.

'Tis called Zephyrus quasi ζωὴν φέρον, bringing life, because it cherisheth and quickneth

III. *Boreas*, the North-wind. Draw it like an old Man, with a horrid, terrible look; his Hair and Beard covered with Snow, or the hoar Frost; with the Feet and Tail of a Serpent.

IV. *Au-*

Chap. 35. *Of the Months of the Year.* 373

IV. *Auster*, the South-wind, is drawn with Head and Wings wet, a Pot or Urn pouring forth Water, with which descend Frogs, Grasshoppers, and the like Creatures, which are bred by moisture.

C H A P. XXXV.

Of the Months of the Year.

I. *January* must be drawn all in white, like Snow or hoar Frost, blowing his Fingers ; in his left Arm a Billet, and *Aquarius* standing by his side.

II. *February* is drawn in a dark sky colour, carrying in his right hand *Pisces*, or Fishes.

III. *March* is drawn tawny with a fierce look, a Helmet upon his Head, leaning upon a Spade : in his right hand *Aries* ; in his left Almond Blossoms and Scions ; and upon his Arm a Basket of Garden-Seeds.

IV. *April* is drawn like a young Man in green, with a Garland of Myrtle and Hawthorn-buds, winged ; in the one hand Primroses and Violets ; in the other *Taurus*.

V. *May* is drawn with a sweet and lovely Aspect, in a Robe of white and green, embroidered with Daffadills, Haw-thorn and Blue-bottles ; on his Head a Garland of white and red Damask Roses ; in the one Hand a Lute ; upon the Fore-finger of the other a Nightingal.

VI. *June* is drawn in a Mantle of dark grass-green ; upon his Head a Coronet of Bents, King-cobs, and Maiden-hair ; in his left hand an Angle ; in his right *Cancer* ; and upon his Arm a Basket of Summer Fruits.

VII. *July* is drawn in a Jacket of a light yellow, eating Cherries, with his Face and Bosom Sun-burnt, on his Head a Garland of Centaury and Time, on his Shoulder a Sithe ; with a Bottle at his Girdle, carrying a Lion.

VIII. *August* is like a young Man of a fierce look, in a flame-coloured Robe ; upon his Head a Garland of Wheat ; upon his Arm a Basket of Summer fruits ; at his Belt a Sickle, bearing a Virgin.

IX. *Septem-*

IX. *September* is drawn in a purple Robe, with a cheerful look, and on his Head a Coronet of white and purple Grapes; in his left hand a handful of Oats, with a *Cornucopia* of Pomegranates, and other Summer Fruits; and in his right hand a Ballance.

X. *October* is drawn in a Garment of the colour of decaying flowers and leaves; upon his head a Garland of Oak-leaves with the Acorns; in his right hand a Scorpion; in his left, a Basket of Services, Medlars and Chestnuts.

XI. *November* in a Robe of changeable green and black; upon his Head, a Garland of Olives, with the Fruit; in his right hand *Sagittarius*; and in his left bunches of Parsnips and Turneps.

XII. *December* is drawn with a horrid Aspect, clad in an *Irish* Rug, or course Freeze girt about him: upon his Head three or four Night-Caps, and over them a *Turkish* Turbant; his Nose red, Beard hung with Iceicles; at his Back a bundle of Holly and Ivy, holding in Furred Mittens a Goat.

Where note, it will be good to give every Month its proper and natural Landskip; not making Blossoms and Fruits upon Trees in December; nor a barren face of the Earth and Trees in June.

Explicit Liber Quartus.

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P O L Y G R A P H I C E S

LIBER QUINTUS.

An Idea of the Arts of Beautifying and Perfuming.

C H A P. I.

Of Painting of the Face and Skin.

I. **T**WO ways there be of adorning of the Face and Skin ; the first is by Painting : the second is, by application of excellent Cosmetics, which give a very natural, absolute and lasting Beauty.

II. The first way, which is that of Painting, is the subject matter of this Chapter. Some may wonder that we should meddle with such a Subject as this, in this place ; but let such know, the Painting of a deformed Face, and the licking over of an old, withered, wrinkled and weather-beaten Skin, are as proper appendices to a Painter, as the rectification of his Errors in a piece of Canvase : Nor is there any reason, but that the Artist should shew his care in the one, as well as to express his skill in the other, since a single deformity in the Body, begets a complication of miseries in the Mind, and a unity of Defects, a multiplication of Evils.

III. And though some think that natural Deformity brings with it a torrent of Dejections, yet let such under-

understand, that when time shall have made its full revolution, themselves may be the product of such a Conception: But we confess it seeks darkness, and only solaces it self in obscurity, and dusky solitudes.

IV. For such whose Bodies have past the stamp with some faults, and have missed the impressions or reflections of Beauty, which might make them delectable in humane Society, *ever make choice of darkness as their chief Companion.*

V. *Deformity* is a Disease esteemed the most pernicious, and its issue is a matter of dangerous consequence, chiefly *obstructions to Ladies Preferment.* Now to prevent this danger, to take away these obstructions, and to deliver you from the embraces of so hideous a Monster, these *Cosmeticks* we have offered upon the *Altar* of your defects; protesting that the use of these Beautifiers, will make your *rusty Skin*, and *ill-looking Faces*, to out-shine, with a radiant lustre, the most splendid of all the *Nymphs of Diana.*

VI. Though you may look so much like the Image of Death, as that your Skins might be taken for your Winding-sheets, yet by our directions you may attain such a rosie color, and such a lively cheerfulness, as shall not only make you look like natures workmanship, but also put admiration into the beholders.

VII. Thus we teach you, *lippid Mortals*, to retrace the steps of youthfulness, and to transform the wrinkled Hide of *Hecuba*, into the tender skin of the greatest of Beauties; which then you will dull by the advance of your Features, and make all conceited shadows of glory, to vanish in your presence. When once your Artificial heat shall appear, others shall seem pale with Envy for your perfections; and their *natural ruddiness* shall only serve them to *blush*, to see their features clouded by your splendor.

VIII. By this means your sparkling Glories shall fire *Platonick Lovers*, so that none, though as cold as *Saturn*, shall be able to resist your actuating flames, but shall force the stoutest heart, to be a *Sacrifice to love.* If any remain unscorched, it must be only those leaden hearted *Cowards*, who dare not *approach* your flames, for fear of *melting*; or those undeserving Soldiers of *Venus* (of a frigid Constitution) who dare not so much as *look up-*
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on your youthful fire, for fear of being burnt to ashes. But it may chance that some one or other, may condemn your *heart* for *evil*, because you strive to make your *faces good*, and may like your *in-side* the *worse*, because your *outside* may look *so well*.

IX. Avoid not company for want of Beauty, when Art affords an innocent supply, but with *confidence* crucifie that evil Conscience, which forbids the use of a little Oil to make a cheerful Countenance, and the drinking of a little Wine to make a merry Heart. Borrow our Artificial Beautifiers, and become *splendid*, that you may be fit to be gathered by the hand of some Metamorphosed *Hero*; lest in the Garden of *Deformities*, growing green with *sickness*, you should be taken for *Thistles*, and so cropp'd by *Asses*.

X. To cleanse the Face and Skin.

Before any thing be used to Paint, or make the Skin beautiful, it must be made very clean thus: first wash with warm Water, and sweet scented Wash-balls very well; then rub the Face with a cloth, and wash well with water in which Wheat-bran is boiled; so is the Skin prepared.

XI. Or thus: Take *Sublimate* two drams in fine powder, glair of six Eggs, boil them in a glass vessel, till they grow thick, then press out the water, with which wash the Skin.

XII. To make a white Fucus or Paint.

Take Talck and powder it, by beating of it in a hot Mortar, to the powder of Talck add distilled Vinegar, boil it at a gentle fire in a wide glass, let the fat froth that swims at top, be taken off with a spoon; then evaporate the Vinegar, and mix the remaining Cream with flegm of common Salt, or a little *Pomatum*, with which wash or anoint the Face, and it will beautifie it much.

XIII. Another very excellent.

Take crude Talck in powder one ounce, Oil of Camphire two ounces, digest till the Oil is white; it is a noble *Fucus* for Ladies Faces.

XIV. To make the aforesaid Oil of Camphire.

Take Camphire four ounces, Bole twelve ounces, make them into Balls,, and dry them in the Sun, then distil them in Sand in a glass Retort, into a Receiver that hath
distilled

distilled Rain water therein : first there will come forth a white matter, which melts in the Alembick, and falls into the Receiver, then a clearer water ; and at last with a stronger fire, the Oil we speak of, sweet scented, which rectified with Spirit of Wine will be yellow as Gold.

XV. *Another excellent Fucus made of Pearl.*

Dissolve Pearl in distilled Vinegar ; precipitate with Oil of Sulphur per Campanam ; then sweeten and digest with Spirit of Wine ; abstract the Spirit, and you have a magisterial *Fucus* will melt like Butter.

XVI. *To make the best Fucus or Paint as yet known.*

Take Venetian Talck, cleave it into slices, digest it in the heat of the Sun, or of a Horse-dunghill for a Month, with distilled Vinegar, made of Spanish Wine, adding every Day new distilled Vinegar to the former, till the Vinegar be mucilaginous ; which then distil by a luted Retort and a large Receiver, with a naked fire. First there comes forth the Vinegar ; then a white Oil, which separate. After you have cleansed the Skin by the second Section, then first wash with the Vinegar, after anoint with the Oil : if the Face be first well wash'd from all impurity, this one anointing may hold for a Month without fading. *This Cosmetick, if rightly prepared, is worth about five pound an ounce.*

XVII. *An excellent Fucus made of Bulls gall.*

Take Bulls galls dried in the Sun, whose tincture extract with Spirit of Wine, with which besmear the Face (being cleansed by the tenth Section) leaving it on for three or four Days, without going abroad, or exposing the Skin to the Air : at the end of the time cleanse the Face again by the said tenth Section : so almost to a miracle, the skin of the Face and Neck is rendred most gratefully white, soft, delicate and amiable. This is the *Spanish Fucus* which several Ladies now use.

XVIII. *To make an excellent Red Fucus.*

Make a decoction of red Sanders in double distilled Vinegar, adding a little Alum, with a few grains of Musk, Amber-grise, or of some sweet Spices, and you will have a perfect red *Fucus* for the Face.

XIX. *Another very excellent.*

Take juice of Clove-gilliflowers, with which mix a little juice of Limons : with this Paint your Face, and you shall have a pleasing red colour.

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XX. *To do the same another way.*

Make a strong infusion of Clove-gilliflowers in rectified Spirit of Wine, adding a few drops of Oil of Vitriol, or instead thereof, a little Alum, and the Juice of a Citron or Limon; so shall you have an excellent colour to beautifie the Face with.

XXI. *A Fucus or Paint not easie to be discovered.*

Take seeds of Cardamoms, or grains of Paradise, Cubebs, Cloves, and raspings of Brazil, which infuse in rectified Spirit of Wine for ten Days, over a gentle heat; then separate the Spirit: this is so perfect a Fucus, that it may deceive any Man, for this clear water gives a fresh, red and lovely colour, which will last long.

XXII. *A Fucus or Cosmetick of River Crabs.*

Take of the flesh which remains in the extremities of the great claws of River Crabs (being boiled) a sufficient quantity, which dry gently, and then extract a deep tincture with rectified Spirit of Wine; evaporate part of the *Menstruum*, till the tincture have a good thickness or body; with which (the skin being cleansed) anoint the cheeks first, applying over it some other albifying Cosmetick.

XXIII. *Spanish Wooll, wherewith Women Paint their Faces red.*

Boil shearings of Scarlet in water of Quick-lime half an hour, of which take two pound; to which put Brazil two ounces, (rasped) Roch Alom, Verdigrise, of each one ounce, Gum-Arabick two drams, boil all for half an hour, which keep for use.

XXIV. *To do the same another way.*

Take Spirit of Wine one pound, Cochinele half an ounce, rasped Brazil one ounce, Gum-Ammoniack three drachms, mix and digest till the Gum is dissolved; then boil it gently, and strain it for use, into which you may put old Linnen Rags, or *Spanish Wooll* at pleasure.

C H A P. II.

*Of Cosmeticks which Beautifie without any thing of Paint.*I. *AN excellent Cosmetick or Liquor of Talck.*

Take powder of Talck (made by rubbing it with Pumice stones ; or beating it in a very hot Mortar ; or filing it with a Goldsmiths smoothing file) eight ounces, *Salis Tartari* sixteen ounces, calcine it twelve hours in a wind Furnace, and set it in a Cellar, separating that which melts, from that which doth not : then calcine this dry Calx added to four times its weight of Salnitre, with a strong fire, so the Talck will be melted into a clear white mass, which being set in a Cellar will turn to a clammy liquor.

This wonderfully whitens and beautifies the Skin, and takes away spots and freckles from the Face : but you must not leave the liquor long on, but wash it off with decoction of Wheat Bran, that it corrode not the Skin.

II. *To make the Skin soft and smooth.*

The Face being very clean, by the tenth Section of the first Chapter, wash it very well with a *Lixivium* of Salt of Tartar, and after that anoint it with *Pomatum* ; or which is better, Oil of sweet Almonds, doing this every Night going to Bed. The *Pomatum* we have taught the way to make in our *Pharmacopœia*, lib. 5. cap. 4. Sect. 22. & 25.

III. *A Water to cleanse the Face from Scurf and Morphem.*

Take distilled Rain Water six ounces, Juice of Limons twelve ounces, mix them, and wash with it Morning and Evening, anointing after it at Night going to Bed with the Oil or *Pomatum* aforesaid.

IV. *An Unguent which brings the Skin to an exquisite beauty.*

Take of our *Pomatum* one ounce, Salt of Tartar one drachm, Musk twenty grains, mix them well, and (the Face or Skin being very clean) anoint Morning and Evening.

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V. *A wonderful Cosmetick of great worth.*

Take white Tartar twenty ounces, Talck, Salt, of each ten ounces, calcine them in a Potters Furnace very well; then grinding the matter upon a Marble, put it into *Hippocrates* his Sleeve, and set it in a Cellar, or other moist place for twenty or thirty days, and there will drop from it a precious Oil; which being rubbed upon the Skin softly with a Linnen Cloth (the Skin being duly cleansed first) takes away all kind of spots, and makes it soft and delicate.

VI. *A cheap, yet excellent Cosmetick.*

Take Alum in fine powder, and shake it with Whites of new laid Eggs, being a little heated, till such time as they grow thick to an Ointment, with which anoint the Face Morning and Evening three or four days; and it will take away spots and wrinkles, and make the Skin grow clear and fair.

VII. *An excellent Mercurial Cosmétique prevalent against most deformities of the Skin.*

Take Mercury purified from all blackness half a pound, Mercury *Sublimate* in powder as much, mix them in a Stone or Marble Mortar ; put them into an Alembick of a strait Orifice, put on distilled Vinegar, till all be covered three or four fingers, letting it stand four days, daily stirring the same at certain times, then it extracts a whitish Powder ; the whitish Vinegar by inclination separate, rejecting it, and put on other Vinegar : the powder at bottom keep so for some days : which labour you must so often reiterate, till you have abundance of that white powder, which dry, and keep for use : anoint with it, by mixing with it a little distilled Rain Water, and it will take away all blemishes of the Skin, as also Tetters. Use it not too often, and beware you touch neither Eyes nor Teeth with it.

VIII. *Another of great estimation.*

Take Mercury *Sublimare*, *Saccharum Saturni*, of each two drachms, Rose Water, Juice of Limons, of each two ounces, mix them like to an Ointment, with which anoint gently at Night, and the next Morning with the *Pomatum* aforesaid.

IX. To make a kind of Lac Virginis, an excellent Cos-
metick.

Take distilled Rain Water a quart, *Saccharum Saturni*
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crystallized one ounce, mix them, and then wash with the water, being settled : the fine white Powder at bottom, is also an excellent Fucus or Paint, which may be laid upon the Skin, if very clean : note, some use Vinegar instead of Rain Water.

X. *To make Oleum Tartari per deliquium.*

Take Salt of Tartar, which put into a bag, with a corner, in a moist Cellar, and the Oil will distil therefrom in drops : with this Oil you may mix a little fair water, and wash your Face at Night going to Bed ; and the next Morning, the Face being very clean, you may wash with the aforesaid *Lac Virginis* ; thus continuing for some days, you may create an exquisite and lasting Beauty.

XI. *A compound Cosmetick esteemed by some of great force.*

Take of the aforesaid *Lac Virginis* one ounce, Oil of Tartar, aforesaid, half an ounce, mix them, with which wash Morning and Night for about a Week, or more, as you shall see occasion ; then anoint with the following Ointment.

XII. *To make the Cosmetick Ointment, aforesaid.*

Take Musk three drachms, Ambergrise two drachms, Civet one drachm, grind them upon a Porphyre or Marble Stone, with Oil of Ben, and Rhodium, of each three ounces, with which anoint, as aforesaid : note, some instead of the Oil of Ben, use Oil of sweet Almonds.

XIII. *A Vegetable Cosmetick.*

Besmear your Face or Skin at Night going to Bed, with the Juice of Wake Robin ; it is excellent.

XIV. *An incomparable Cosmetick of Pearl.*

Dissolve Pearls in Juice of Limons or Distilled Vinegar, which digest in Horse-dung, till they send forth a clear Oil, which will swim on the top : this is one of the most excellent Cosmeticks or Beautifiers in the World : This Oil, if well prepared, is richly worth seven pound an ounce.

XV. *A Cosmetick Ointment of great worth.*

Take of our *Pomatum*, aforesaid, six ounces, *Saccharum Saturni* two ounces, mix them, and anoint Morning and Evening.

XVI. *Another very good for the Skin.*

Mix *Saccharum Saturni* one drachm, in Vinegar half an ounce,

Chap. 2. *Of Painting the Face, &c.* 383

ounce, which mingle with the glair of Eggs, and anoint with it.

XVII. *A Cosmetick wonderful to make a pleasing ruddy Complexion.*

Take Oil of Tartar four ounces, Alum, Sal Gem, of each one ounce, Borax, Camphire, of each half an ounce, beat them well together, to which add of Briony water a Pint, distil them in *Balneo*, and you will have your desire.

XVIII. *Another for the same.*

Take Madder, Myrrh, Saffron, Frankincense, of each alike, bruise and steep all in White Wine, with which anoint the Face going to Bed, and in the Morning wash it off, and the Skin will have a gallant pleasing blush.

XIX. *To make the Cosmetick of Myrrh very excellent.*

Boil Eggs till they are hard, slit them and take out the yolks, fill them up with poudred Myrrh, close them together, and lay them in a moist Cellar, and the Myrrh will dissolve into Oil.

XX. *To make a very good Wash to whiten the Skin, and give a good Complexion.*

Take Limons, Hens Eggs boiled, of each twelve ounces, Turpentine eight ounces, distil all in *Balneo Mariae*, with which wash: when you wash, you may drop into it a drop, two or three of Oil of Oranges or Cinnamon, for fragrancy sake.

XXI. *A Cosmetick to make a rough Skin smooth.*

Take sweet Almonds blanched four pound, moisten them with Spirit of Wine and Rose Water mixt together, of each two ounces, beat them together, and fry them; and when they begin to smoak, put them into a Bag, and press them (in a Press made for that purpose) and there will come forth a very clear Oil; which put into Rain Water, and beat it till it is exceeding white.

C H A P. III.

Of Cosmeticks, which remedy the various Vices of the Skin.

I. TO take away Sun-burnings.

To the glair of ten Eggs put to it Sugar-candy one ounce, and anoint with it going to Bed: or anoint with the Juice of Sow-bread at Night going to Bed: and in the Morning with Oil *Omphacine*. The like effects hath our *Lac Virginis*, at the ninth Section of the second Chapter, as also *Oleum Tartari*, and other things of like nature.

II. To take away Redness and Pimples.

First prepare the Skin by bathing it often with the decoction of Wheat-bran, and applying Pultises of Bread, Milk and Oil thereto: when the Skin is thus suppled and rarified, you may cure them either by our Liquor of Talck, at the first Section of the second Chapter, or Mercurial Cosinetick at the seventh Section of the second Chapter, or our *Lac Virginis* and Oil of Tartar at the ninth and tenth Section of the second Chapter, or by often washing with Juice of Limons.

III. To take away Freckles.

Take Juice of Limons, put it into a Glasse-bottle, to which put fine Sugar, and *Borax* in powder, digest it eight days in Sand, then use it; or mix *Sal Tartari* with Whites of Eggs, and apply it; or often use our compound Cosinetick at the eleventh Section of the second Chapter, or Oil of Tartar alone, for some Weeks; but if all fail, you must have recourse to our Liquor of Talck at the first Section of the second Chapter, or Mercurial Cosinetick at the seventh Section of the said second Chapter.

IV. To take away spots from the Face or Skin.

This is done by anointing with Oil of Tartar for ten days; and after all that to wash it with a *Lixivium* of *Quick-lime* in which *Sal-armoniack* hath been dissolved for a long time: or you may use the Cosmetick at the third Section of the second Chapter camphorated.

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Chap. 3. Of remedying Vices of the Skin. 385

V. To cleanse a scurfy Skin.

If the Creature be fat, foment first with a *Lixivium* of Salt of Tartar; but if lean, make a Fomentation of Borrage, Bugloss, and Mallow leaves, which use for some days: this being done, Bathe the place where the scurf is, with *Spiritus Nicotiana* made by fermentation, which being dried in, anoint first with Oil of Tartar, then with Oil of Almonds; repeating the three last works so often till the scurf goes away.

If all these fail, you must have recourse to our *Liquor of Talck*, or *Mercurial Cosmetick*; or those at the fifth and eighth Section of the second Chapter, which without doubt will perform your desire.

VI. To free the Skin from Tetters and Ring-worms.

Dissolve *Sublimate* one ounce in a Glass of Red Wine by boiling, with which wash the place Morning and Evening, letting it dry of it self, for three or four days together, and it will certainly cure: if they be not inveterate, our *Liquor of Talck* at the first Section of the second Chapter, or *Mercurial Cosmetick* may sufficiently do; or you may anoint with this ointment. Take *Sal Tartari* two drachms, burnt Alum three drachms, powder and incorporate with Whites of Eggs: Or this, Take *Sulphur vive* three drachms, Camphire one drachm, Hogs-grease two ounces, mix and make an Ointment.

VII. To take away Wrinkles from the Skin.

Take Oil of Almonds, lees of Oil Olive, and make them into an Ointment with Wax, powder of Camphire and Mastich, with which anoint. Oil of Myrrh to anoint with, is eminent in this case: or wash with a decoction of Briony roots, and Figs, of each alike: or dissolve Gum Tragacant in *Lac Virginis*, and wash with that. Excellent good is a strong decoction of Pomegranate Peels in White Wine, to wash often with.

VIII. To take away Warts.

The Juice of the greater Spurge with Salt, anointed, takes them away, so also a continual washing with a *Lixivium* of Quick-lime and Salt of Tartar. The Juice of *Verrucaria* performs the same. A Plaister of *Cantharides*, with a defensative, is very good in this case: so also this following Wash; Take *Saccharum Saturni* three ounces, *Sal-armoniack* one ounce, Vitriol common six drachms,

drachms, Quick-lime eight ounces, boil all in water four pound, to the consumption of the half, with which often bath the Warts, and then wash with our Mercurial water. Black Soap hath often been found very good; but especially a Plaister of Turpentine.

IX. *To heal Chaps in the Skin.*

Our *Pomatum* in this case is most excellent: yet this following is commendable. Take Capons grease mixed well with Camphire, and anoint with Oil of Turpentine two drachms, mixed with *Unguentum Populeon* two ounces. So also Oil of Roses mixed with Sheep Suet and Wax to an Ointment.

X. *To heal Burnings and Scaldings.*

Excellent good is the *Unguentum Rubrum* in our *Synopsis Medicina*, both to draw out the fire, and to heal. To draw out the fire also, glair of Eggs mixed with Rose Water, is very prevalent: so also is Salt, raw Onions, Soap, Yest, Oil of Tartar, and the like. To hinder the rising of the Blisters, Hens dung three ounces, mixed with Hogs grease four ounces, and Salt of Tartar one ounce is very good; so also a Cataplasim of Honey and Crums of Bread; but best of all a plaister of strained *Opium*, with Oil and Wax, which performs all the intentions to admiration. If the Blister break, it may be presently skinned by anointing with Oil of Eggs, and washing often with *Lac Virginis*, strewing upon the sore, powder of Bole, Tutty, Ceruse, or the like.

XI. *To take away Scars and Marks of the Small Pox.*

Take of Oil of Tartar one ounce and half, Ceruse dissolved in Oil of Roses one ounce, *Borax* and *Sal Gem* of each one drachm, mix and make an Ointment, with which anoint. Oil of Tartar alone performs this work well: so Salt of Tartar, mixed with powder of Myrrh and Oil of Roses. But *Emplast. Epispasticum* is infallible and safe.

XII. *To beautifie the Hands.*

To make them soft, often anoint with the Oil of Almonds or our *Pomatum* at Night going to Bed, washing them the next Morning with decoction of Wheat-bran: after a while wash them with Salt of Tartar, dissolved in fair water, perfumed with Oil of Cloves, Oranges, Rhodium or Cinnamon. Or this, Take *Venice Soap* dissolved

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Chap. 3. Of remedying Vices of the Skin. 387

solvd in Juice of Limons one pound, Virgin-honey four ounces, Sublimate, Orrice root, Sugar, Salt of Tartar, Alum, Borax, of each one ounce, Balsam of Peru, two drachms, Oil of Cloves one drachm, Oil of Rhodium and Cinnamon of each half a drachm, make a mixture to wash the hands withal : Or this, take powder of Venice Soap one pound, Orrice Root eight ounces, Amylum six ounces, mix them and make an Ointment with liquid Storax and Oil of Benjamin a sufficient quantity ; it wonderfully whitens, smooths and softens the hands. To anoint also with Bulls Gall is very good.

XIII. To help hands which are swoln, and look red or blue with cold.

What we even now said (in the last Section) may be said again here : to which we add, that a long bathing of them in a lather of Castle Soap, is very good : or if a repercussive Plaister be applied made of Barley meal, Saccharum Saturni, and Oil of Myrtles ; washing (after the coming off of the Cataplasim) with Juice of Limons or White-wine Vinegar : a Plaister of Turpentine mixed with Salt is good. Often to anoint the hands with Oil of Roses, Almonds, or Pomatum at Night, and the next Morning with the Lac Virginis prevails much. Oil of Anniseeds, Caraways and Fennel prepared Chymically, as also Cloves and Oranges, mixed with Oil of Almonds, and often used, are eminent above all other things.

XIV. To make the Skin soft, smooth and white, take away Pimples, Morphem, Scurf, &c.

Bath the places affected, well, Morning and Night, with Powers of Rosemary, Amber or Limons, and you will have your desire in some short time with advantage. These things are beyond all hitherto-named.

C H A P. IV.

*Other Admirable Beautifiers.***I.** *TO remedy the evil colour of the Green Sickness.*

Take Crocus Martis aperitive, Harts horn calcined in fine powder, of each an ounce; double refined Sugar two ounces: mix them. Dose two drams Morning and Evening, washing it down with a Glass of White Wine.

II. *For Sore and Bleared Eyes, or a sharp humor in them.*

Take Damask Rose Water a Pint, *Saccharum Saturni* a dram; mix and dissolve; drop it 3, 4, 5, or 6 times a day into the Sore, Rheumatick or Inflamed Eye.

III. *For Sore and Weeping Eyes.*

Take fair water three Quarts; and being boiling hot, put into it fine Bole one ounce, white Vitriol six drams, Camphire one dram; digest upon the fœces a Week, and decant the clear for use. It cures Sore Running Eyes, all sorts of Ulcers, Tetters, Ring-worms, Scabs, &c. being in these latter cases used twice a day, half an hour at a time, as hot as the Patient can endure it.

IV. *To remove the filthy colour of the Yellow Jaundice.*

Give the party Morning and Evening a large spoonful of the black Tincture of Iron, (made by putting old Nails into White Wine, and digesting them together for some Months, shaking the Bottle once a day) this clear black Tincture you may give in White Wine or Ale, as the Patient likes best. It cures also the Green-sickness, and provokes the terms in Women.

V. *For Pimples, and other Deformities of the Face and Skin.*

Take Damask Rose-water a Gallon: Salt Peter in fine powder half a pound; mix and dissolve over a gentle heat, and keep it for use. Wash often the Face and Skin therewith, it admirably clears it from almost all Deformities.

VI. *Another for the same.*

Take Damask Rose-water a Gallon, Oil of Sulphur an Ounce; mix and let the Patient wash therewith Morning

Chap. 4. *Other Admirable Beautifiers:* 389

ing and Evening. If it is too sharp, you may put in more Rose-water : it is good against Pimples, Tetters, Ring-worms, Scurf, Morpew, Leprosie, Freckles, &c.

VII. *Another mixture excellent against redness of the Face and Pimples.*

Take fair water two Quarts, White Wine Vinegar a Gallon, Lime Juice a Quart, Spirit of Wine or Brandy three Pints, mix them : wash herewith two or three times a day.

VIII. *A Cosmetick against Freckles.*

Take Flower of Sulphur, Salt Peter, of each two ounces ; Juice of Limons a pint and half ; Brandy, fair Water, of each a Pint ; mix, digest in Sand for 14 days, and keep the Water upon the Fæces : wash with it twice a day, and let Cloths wet therein dry upon the Freckles.

IX. *Another against Pimples, Scurf, Morpew, Scabs, Freckles, &c.*

Take fair Water a Gallon ; Spirit of Wine two Quarts ; Oil of Salt four or five ounces : mix them, and wash therewith twice a day.

X. *Another Cosmetick.*

Take *Corrosive Sublimate* made into fine powder (between pieces of strong Paper and Leather, and beaten with a Hammer, that its Atomes may not fly into your Mouth, Nostrils, and Eyes :) one ounce ; put it into boiling Water a Gallon ; when it is dissolved put to it three Gallons of Damask Rose-water, and keep it for use. With this Water touch or wash Scabs, Pimples, Ring-worms, Tetters, Scurf, Morpew, Freckles, Lentils, &c. twice or thrice a day, and it will cure.

XI. *Another Cosmetick.*

Take Crumbs of Wheat Bread hot out of the Oven four pounds ; glair of Whites of Eggs N^o xvij. Goats Milk two Gallons ; Shells of Eggs N^o xvij. burnt white ; mix, and distil off the Water in a Glass Alembick, with a gentle fire. It is good against spots and redness of the Face.

XII. *Another excellent Cosmetick.*

Take Ox Galls N^o vj. Roch Alum, Nitre, of each two ounces ; Flowers of Sulphur one ounce ; Borax, Camphire, of each half an ounce ; the gross ingredients being in fine powder, mix them with the Galls, and shake them

them together for a quarter of an hour, every day for a fortnight; then let all settle, decant the clear, and filter through brown Paper, and keep it for use. It is an excellent Beautifier.

XIII. *A Cear-Cloth to lay over the Face all Night, to make it soft and smooth.*

Take white Bees Wax four ounces, Sheeps Suet, *Sperma Ceti*, of each two ounces; Oil of Ben, Camphire, of each one ounce; melt all together, and spread it thin upon Cloth, and so apply it over the Face every Night.

XIV. *To cleanse the Hands and Face, and make them white, soft, and smooth.*

Take Water two or three Gallons; Calves Feet a sufficient quantity; boil all together, and make a good strong Gelly; strain boiling hot through a double Flannel bag: add to it half the Quantity of the Juice of Limons, filtered through brown Paper, boil to a consistence, and keep it for use: wash Morning and Evening the Hands and Face with this Gelly, and it will make an excellent Skin.

XV. *A Wash for a Tann'd Face.*

Take Wheat Bran a quarter of a Peck: White Wine Vinegar three Quarts; infuse warm for one Night: then add twenty Eggs, beaten all together, shells and all; mix, and distil in a Glass *Balneo* to dryness: so will you have a Water, which will add an admirable Beauty to the Face.

XVI. *Another excellent Water for a Tann'd and Sun-burnt Skin.*

Take Barley Water, the second water made of hull'd Barley, and filtered through brown Paper, a Gallon; Tincture of Balsam of *Pern* four ounces; mix them together, and keep it for use. It is said to clear the Skin, make the Flesh plump, and take away wrinkles, if long used, and preserves Youth and Beauty: your Face ought always to be wash'd very clean before you use it.

XVII. *To cure Puslules, Pimples, Redness, Itching, Ring-worms, Tetters, Scurf, Morpew; and other like Deformities of the Face and Skin.*

Take choice White Wine Vinegar, a Gallon: Juice of Limons filtered through brown Paper, a Quart: Brandy a Pint: mix them and keep it for use. Sprinkle this mixture upon a Chafing-dish of Coals, and receive the Fumes

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Fumes of it upon your Face, Hands, Arms, or other parts affected, three or four times a day ; and continuing this course for some few days, it will effectually cure those diseases aforementioned.

XVIII. *An excellent Pomatum for the Face, Lips, &c.*

Take Oil of Ben sixteen ounces ; choice tryed Mutton Suet, or Lamb Suet, four ounces ; melt them together ; and colour it of a reddish blush, by putting into it *Alkanet* Roots : with this you may anoint as you see occasion. It whitens and softens the Skin, being often used.

C H A P. V.

Of Cleansing the Teeth.

I. **T**O cleanse Teeth which are furred over.

Rub them every Morning, and every time after eating with *Cremor Tartari* in fine powder ; and then wash them with this mixture. Take fair water, a Quart ; White Wine Vinegar, a Pint ; Juice of Limons, half a Pint ; White Port Wine, a Pint and half ; Brandy, half a Pint ; mix them, to make a wash for the Teeth.

II. *Another excellent Wash for the same.*

Take rectified Spirit of Wine a Pint ; Oil of Sulphur an ounce ; mix them : this makes them purely clean : first wash or rub them with this, and then afterwards wash them with fair warm water.

III. *To whiten black Teeth.*

Take Syrup of Roses sixteen ounces ; Damask Rose-water twenty ounces ; Spirit of Sulphur, or Vitriol, four pounds ; mix them. First rub your Teeth with a cloth dipt in this Liquor, then wash your Mouth in Damask Rose-water.

IV. *A Powder to cleanse the Teeth when furr'd.*

Take Red or White Coral, which beat to Powder and levigate upon a Porphyre, with Damask Rose-water ; dry it, and keep it for use : with this rub the Teeth twice a day. Some use powder of Bricks, which if fine, is good, being mixt with a little Honey. After rubbing the
Teeth

Teeth with these Pouders, wash them with fair water, or Rose-water.

V. *Another for the same.*

Take Ashes of Rosemary-branches, a pound ; Rose Vinegar *q. s.* digest xxiv. hours, then dry it, and keep the powder to rub your Teeth with.

VI. *Another for the same.*

Take levigated Powder of Crabs Eyes and Claws, and of red Coral, Powder of burnt Harts-horn, *ana* four ounces ; Salt of Wormwood one ounce : mix them, and make a Powder.

VII. *Another Powder for the Teeth.*

Take Pumice-stone in fine Powder, Coral levigated, Brick-dust, of each a pound ; *Catechu* twelve ounces ; Orrice Root, eight ounces : mix and make a Powder to rub the Teeth with, Morning and Evening ; washing them afterwards with a mixture of equal parts of Damask Rose-water, fair water, and White Wine Vinegar.

VIII. *To whiten black Teeth.*

Take Rose-water a Gallon ; Oil of Sulphur four ounces ; mix them. Tye a Rag to the end of a stick, dip it in the former water, and scowre the Teeth therewith ; this do several times, Morning, Noon and Night, till the blackness is gone ; then rub them with Oil Ben, perfumed with a few drops of Oil of Cinnamon.

IX. *To fasten loose Teeth.*

First rub the Teeth with this Powder. Take *Catechu*, *Roch-Alum*, of each alike quantity in fine Powder, mix them, and rub the Teeth with the same. Then wash with this : *R* Damask Rose-water a Quart, strong Tincture of *Catechu* six ounces, mix them : and after that wash them with the best Red Wine, Morning, Noon and Night : and every Night going to Bed lay fresh or green Scurvy-grass between the Cheeks, Lips and Teeth all Night.

X. *To Cure Teeth which are Rotting.*

Take Harts-horn calcined and levigated, magistery of Coral, of each four ounces ; Orrice in powder six ounces ; Oil of Rhodium a dram : mix them for a Dentifrice to rub the Teeth withal. It will keep them white and sound.

XI. *Another for the same.*

Take Harts horn calcin'd and levigated, Salt of Tartar sulphurated, of each eight ounces ; mix them for a Dentifrice, 'tis excellent.

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XII. *A Liguor to cleanse them.*

If you do but touch them twice or thrice a day with my *Spiritus Aperiens*, it will in a little time make them as white as it is possible for them to be ; after using of which each time, you may wash your Mouth with fair water.

XIII. *Where the Teeth are Rotten and Hollow.*

Make little Pellets of strained Opium, and Myrrh, with a few drops of Oil of Caraways, and put them into the hollow Teeth ; repeating it as oft as need requires.

XIV. *To help or ease the Pain of the Teeth.*

If the Teeth are hollow, fill the hollowness with some of the former Pellets : Or make small Pellets of our *Laudanum*, and a little Lint, and use them as the former ; but if they be not hollow, lay long Rolls of our *Laudanum* made up with Lint, all Night between the Cheek and Teeth, or Gums, repeating the application two or three times in the Night, and if the Pain is vehement, take also inwardly two or three Grains of the same *Laudanum*.

XV. *To Help or Cure the Stinking of the Teeth.*

If they stink much, often wash them with Damask Rose-water, a little sharpned with Oil of Sulphur ; or with Brandy, a little sharpned with Oil of Vitriol ; or with Spring Water, sharpned with choice Juice of Lemons ; or with Tincture of Cinnamon made in common Brandy ; and you must be always sure to wash them with some of the former things ; or with fair water mixt with White Wine, or White Wine Vinegar, after Eating : and this is daily to be continued till the Cure is absolutely compleated.

CHAP. VI.

Of making a Sweet Breath.

I. **A** Stinking Breath comes from one of these four causes, viz. from rotten and defective Teeth ; putrified Lungs ; or Obstruction of the Stomach ; or a Distemper of the Head.

II. To

II. To Cure it when it proceeds from Rotten Teeth, &c.

This is to be cured by the directions given in the former Chapter, of which we have spoken largely enough, so that no more need be said in this place.

III. To remedy a stinking Breath, when it proceeds from putrified Lungs.

Outwardly anoint the Brest and Stomach with Juice of Tobacco, boiled to a thickness, mixt with an equal quantity of Oil of Amber. Inwardly give Balsam of Sulphur Morning and Evening, and in all that the Patient drinks in the day time, some Drops, viz. 20, 30, or 40 Drops at a time of our *Spiritus Aperiens*.

IV. Some other Remedies for the same purpose.

Give inwardly the Anisated Balsam of Sulphur, Morning and Evening 15, or 20, or 25 Drops, made into a Bolus with double refined Sugar; at Ten in the Morning, and Three in the Afternoon, give half a dram of *Bezoar Minerale*, or *Antimonium Diaphoreticum*, or as much of *Antihæcticum Poterij*, or a Scruple of *Arcanum Jovis*, made up into a Bolus with Syrup of Green Ginger. Let him also now and then eat a Race of Green Ginger, and drink after it a Glass of good Red Florence Wine. These things being taken for several Days or Weeks, at last consummate the Cure with this: In the Morning, and at four Afternoon, let him take this Bolus: Take *Catechu* in fine powder, *Nutmegs* in powder, *Bezoar mineral*, of each an ounce; Oil of Cinnamon xx. drops: choice Honey enough to make it into an Electuary; Dose as much as a Chestnut at a time: and at Night let him take this. *R Venice Turpentine* two ounces; *Catechu* in fine powder q.s. mix and make Pills: Dose, a dram every Night at Bed time.

V. A Stinking Breath from Distemper of the Stomach.

This is cured by opening and cleansing the Stomach: first Vomit with *Vinum Benedictum* one ounce, or more, as strength requires, which may be repeated two or three times: or you may Vomit in like manner with *Tartar Emetick*, or some other *Antimonial* Vomit, or with *Vinegar* or *Wine*, or *Oxymel of Squills*: this done, you may purge the Bowels with our *Family Pills* four or five times, and after that, every Morning, fasting the Patient may take a Scruple of *Pil. Ruffi*, or three drams of *Elixir Proprietatis* for ten or twelve times, either every day, or every

ry other day, in the Morning fasting, drinking after it some warm Broth or Posset-drink.

VI. *A Stinking Breath from Distemper of the Head.*

You are to consider the Cause of the Distemper, whether it is from Apoplems, the Pox, Leprosie, Elephantiasis, &c. and then to pursue the Method used in the Cure of those Diseases; for so the Cause being taken away, the Effects will soon cease. Yet nevertheless, if the Patient will be pleased to take some few Doses of the *Pilula Lunares* every other Night at Bed time, or every third, or fourth Night, he will find a Satisfaction beyond all Expectation.

VII. *A Stinking Breath from Ulcers of the Nose, Throat, or Mouth.*

This cannot be cured but by curing of those Ulcers: if they be not inveterate and stubborn, they may be cured with this Wash: Take *Aqua Regulata* two ounces: *Tincture of Catechu* one ounce: Honey, enough to sweeten mishal: with this gargle or wash the Throat, Mouth or Nose, three or four times a day: if this will not do, you must use the *Water of the Griffen*, which seldom fails, though the Ulcers be never so rebellious: but if all these things fail, you must make use of this. Take *Damask Rose-water* five ounces: *Powers of Mercury* two drams; mix them: and therewith gargle or wash the Parts affected three or four times a day, this will not fail.

VIII. *To rectifie the Breath when it smells of any thing that is eaten.*

Chew *Coriander Seeds* or *Zedoary* in the Mouth, or *Jamaica Pepper*, drinking a draught of Wine after it: or you may chew the *Perfumed Grains of Catechu*, which will give the Breath an incomparable Odour, beyond most other things.

C H A P. VII.

Of Beautifying the Hair.

I. **T**O dye the Hair black.

This is done with the *Calx of Luna* (made by Spirit of Nitre) mixed with fair water, and the Hair washed therewith, with a Sponge: it is the most excellent thing of that kind that is yet known.

II. To keep the Hair from falling off.

Take Myrtle-berries, Galls, Emblick Myrobalans, of each alike, boil them in Oil Omphacine, with which anoint: it is an excellent Medicine, yet as old as *Galien*.

III. To remedy Baldness.

This is a hard thing to cure, yet the following things are very good. Rub the Head or bald places every Morning very hard with a coarse Cloth, till it be red, anointing immediately after with Bears grease: when ten or fifteen days are past, rub every Morning and Evening with a bruised Onion, till the bald places be red, then anoint with Honey well mixed with Mustard-seed, applying over all a Plaister of *Labdanum* mixed with Micedung, and Pouder of Bees: do this for thirty days. If all the former fail, bath with a decoction of Bur-dock roots, made with a *Lixivium* (of Salt of Tartar) two parts, and Muskadel one part; immediately applying this Unguent: take *Thapsi* or *Turbish* one dram (in powder) Bears-grease one ounce, mix them, which use for sixty days; if this make not the Hair come, the defect is incurable.

IV. To take away Hair from places where it should not grow.

Take Quick-lime four ounces, *Anripigmentum* one ounce and a half, *Sulphur vive*, Nitre, of each half an ounce, *Lixivium* of Salt of Tartar a quart, mix and boil all so long in a glazed earthen pot, till putting a quill therein, all the feathers peel off, and it is done. First foment the place with warm water a little before you use the aforesaid Medicine; a quarter of an hour after wash

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wash with very hot water ; then anoint with the afore-
said Unguent, and in a quarter of an hour it will do the
work, when the hairs are fallen away, remember to anoint
with Oil of Roses ; now to keep them from ever grow-
ing again, anoint for some days with an Ointment
made of the Juice of Henbane and Nightshade, *Opium*
and Hogs-grease.

V. *To make the Hair curl.*

Wash the hair very well with a *Lixivium* of Quick-
lime, then dry it very well, that done, anoint it with Oil
of Myrtles, or Oil *Omphacine*, and powder it well with
Sweet Powder, putting it up every Night under a Cap :
if the party be naturally of a cold and moist Constitution,
the washing, anointing and powdering must be perpe-
tually used once or twice a Week during Life, the Hair
being put up every Night.

VI. *To make Hair lank and flag that curls too much.*

Anoint the Hair thoroughly twice or thrice a Week with
Oil of Lillies, Roses, or Marsh-mallows, combing it after
it very well.

VII. *To make the Hair grow long and soft.*

Distil Hogs-grease or Oil Olive in an Alembick, with
the Oil that comes there-from anoint the Hair, and it will
make it grow long and soft : use it often.

VIII. *To preserve the Hair from splitting at the ends.*

Anoint the ends thereof, with Oil *Omphacine*, or Oil
of Myrtles, they are eminent in this case to preserve the
Hair from splitting ; so also an Ointment made of Ho-
ney, Bees-wax and Oil *Omphacine*, or Bears-grease.

IX. *To make White Hair of a Brown colour.*

Take Aqua fortis three ounces : filings of Silver two
penny weight, or value of Six pence, digest in a boiling
Balneo, till the Silver is perfectly dissolved, then mix with
it a little Strong Water ; with which wash White Hair,
and it will make it of a Brown-Bay color.

X. *To make the Hair grow well and thick.*

Make a strong decoction of Tops of Hemp in Wine,
and therewith wash the Head and Hair Morning and
Evening for three Weeks or a Month.

XI. *To make a Yellow Head of Hair Black.*

Anoint the Teeth of a Comb with Oil of *Tartar per*
deliquium, and dip a Sponge in it, and do the Comb
with it, and Comb the Head in the Sun (it being first
washed

washed clean with fair warm water) do this for a quarter of an hour together, often anointing the Comb with the Oily Sponge, and repeat it thrice a day for seven days, so will the Hair become Black afterwards you may anoint it with *Oil of Rhodium*.

XII. *A Water to colour the Hair black.*

Take Aqua fortis three ounces; fine Silver in Leaves one ounce: put them in a Glas Matres, and over a gentle fire dissolve the Silver: then add Damask Rose-water half a Pint, boil a quarter of an hour; after add the Juice of two large Citrons; boil again another quarter of an hour, and keep it for use, in a Bottle close stoppt. When you use it, take four Spoonfuls thereof, and add as much Juice of Citrons; warm them, and wash the Hair therewith, with a bit of Sponge, taking heed that you touch not your Skin, or any of your Linen, because it will rot it; the Hair being washt, let it dry on.

XIII. *To make the Hair grow long.*

Make a Lye of the Ashes of Maidenhair, Southernwood, Mullein, Hemp tops, and Cane Roots, dissolve in every quart of Lye half an ounce of Myrrh, and add to it an equal quantity of White Wine; with this wash the Head Morning and Evening for twenty days.

XIV. *To make the Hair grow in bald places.*

First wash the places affected very well, for almost a quarter of an hour, with a Decoction of Wheat Bran; then for a quarter of an hour, or longer, rub the said affected places with a large strong Onion cut in halves: do this for almost half an hour; and afterwards anoint the parts with this Ointment. Take Bears-grease a pound; Juice of Moll, or of Onions, eight ounces: powder of Mouse-dung six ounces: Oil of Tarter *per deliquium* one ounce; mix them, and anoint therewith: Let all this work be done two or three times a day, and continued for a Month compleat; if the deformity is not incurable, this will perform the work.

C H A P. VIII.

Of the Art of Perfuming in General.

- I. **I**N this Art two things are to be considered, *viz.*
 1. The way and manner of making of Perfumes.
 2. The way and manner of Perfuming.
- II. The Perfume it self is considered, 1. In respect of its form. 2. In respect of its Composition.
- III. The Form of the Perfume is either Water, Oil, Essence, Unguent, Pouder, or Tablets.
- IV. The Making and Composition is taken from the Form and Matter.
- V. The Matter is either Vegetable, Animal or Mineral.
- VI. The way of Perfuming is according to the Matter to be perfumed.
- VII. The matter to be Perfumed is either Natural, as Hairs, Skins, Cloths, Air, &c. or Artificial, as Pomanders, Pouders, Wash-balls, Soaps, Candles, and other things of like nature:

C H A P. IX.

Of the Matter of which Perfumes are made.

- I. **T**HE ground of *Vegetable* Perfumes, is taken from *Flowers, Seeds, Herbs, Roots, Woods, Barks, and Gums.*
- II. The chief *Flowers* for this use, are of Clove-gilliflowers, Roses, *Jasemin*, Lavender, Oranges and Saffron.
- III. The chief *Seeds* or Fruits are Nutmegs, Cloves, Carraways, Grains, Seeds of *Geranium Moschatum*, Musk-seeds, and the Nut Ben, which Oil is only used as a Vehicle.
- IV. The chief *Herbs* are *Geranium Moschatum*, Basil, Sweet Marjoram, Savory, Time, Angelica, Rosemary, Lavender, Hyssop, sweet Trefoil, Mint, and Bay-tree leaves.

V. The chief Roots are of *Calamus Aromaticus*, Ginger, China, *Caryophyllata*, Indian Spicknard, and sweet Orrice, or Iris.

VI. The chief Woods are of yellow Sanders, *Xylo-balsamum*, *Lignum*, *Aloes*, *Rhodium*, *Sassafras* and Cedar.

VII. The Barks and Peels are of Cinnamon, Mace, Oranges, Limons and Citrons.

VIII. The chief Gums are Frankincense, *Olibanum*, Labdanum, liquid Styrax, *Balsamum Verum*, Amber-grise, *Styrax Calamita*, Benjamin, Amber, Camphire.

IX. The chief matters of Perfumes taken from Animals, are Musk, Civet, Cow-dung, and other Turds.

X. Of Minerals there are two only, which yield a Perfume, and they are *Antimony* and *Sulphur*.

CHAP. X.

Of the Oil of Ben.

I. THE little Nut which the *Arabians* call *Ben*, is the same which the *Latins* call *Nux Unguentaria*; and the *Greeks*, *Balanus Myrepisca*; out of which is taken an Oil, of great use in the Art of Perfuming.

II. To make the Oil of *Ben*. Blanch the Nuts, and beat them very carefully in a Mortar, and sprinkle them with Wine, put them into an Earthen or Iron Pan, and heat them hot, then put them into a Linnen Cloth, and press them in an Almond Press, this work repeat, till all the Oil is extracted, so have you Oil of *Ben* by expression.

III. In like manner you may express the Oil out of Citron Seeds, incomparable for this purpose, to extract the scent out of Musk, Civet, Amber, and the like, because it will not quickly grow rank, yet Oil of the Nut *Ben* is much better.

IV. This Oil of *Ben* hath two properties; the one is, that having no scent or odour of it self, it alters, changes or diminishes not the scent of any Perfume put into it: the other is, that it is of a long continuance, so that it scarce-

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scarcely ever changeth, grows rank, corrupts, or putrifies, as other Oils do.

V. To make a Perfume thereof, put the Musk, Amber, &c. in fine powder, therinto, which keep in a Glass Bottle very close stopt for a Month, or more, then use it.

VI. Or thus, Blanch your Nuts, and bruise them, (Halle Nuts may do, tho' not so good) and lay them between two rows of Flowers, suppose Roses, *Jasemin*, &c. or other Perfumes; when the Flowers have lost their scent and fade, remove them, adding fresh ones; which repeat so long as Flowers are in season; then squeeze out the Oil, and it will be most odoriferous.

VII. Lastly, by this last you may draw a sweet scent out of those Flowers, out of which you cannot distil any sweet water.

C H A P. XI.

Of Sweet Waters.

I. *THE first Sweet Water.*

Take Cloves in powder an ounce, yellow Sanders, *Calamus Aromaticus* of each half an ounce, *Aqua Rosarum Damascenarum* fifteen pound, digest four days, then distil in an Alembick; to this new distilled water put in powder Cloves, Cinnamon, Benjamin, *Storax Calamita*, of each half an ounce, distil again in *Balneo*; lastly put the water into a glass bottle with Musk and Ambergrise, of each ten grains, keep it close stopt for use.

II. *The second Sweet Water.*

Take Damask Roses exungulated three pound, Flowers of Lavender and Spike, of each four ounces, Clove-gilliflowers, and Flowers of *Jasemin*, of each two pound, Orange-flowers one pound, Citron peels four ounces, Cloves one ounce, Cinnamon, *Storax Calamita*, Benjamin, Nutmegs, of each half an ounce, all in powder, *Aqua Rosarum* six pound, digest ten days, then distil in *Balneo*: to the distilled water add of Musk and Ambergrise of each thirty grains.

III. *The third Sweet Water.*

Take Roses, Clove-gilliflowers, of each one pound, Flowers of Rosemary, Lavender, *Jasemin*, Marjoram, Savory, Time, of each three ounces, dry Citron peels, one ounce, Cinnamon, Benjamin, *Storax Calamita*, of each half an ounce, Nutmegs, Mace, of each one dram; bruise the Herbs and Spices well, digest in the Sun two days, then distil in *Balneo*: to the distilled water add Musk in powder one scruple.

IV. *The fourth Sweet Water.*

Take Cloves, Cinnamon, of each one dram, Mace, Grains, Musk, Ambergrise, Citron peels, of each half a dram, Benjamin, *Storax Calamita*, of each one scruple, *Aqua Rosarum* twelve pound, digest fifteen days, then distil in *Balneo*.

V. *The fifth Sweet Water.*

Take Rosemary-flower water, Orange-flower water of each five pound, Ambergrise one scruple, digest ten days, then distil in *Balneo*, or keep it without distilling.

VI. *The sixth Sweet Water.*

Take Roses two pound, Macaleb, half a dram, Ambergrise ten grains, bruise what is to be bruised, digest in Sand three days, then distil in *Balneo*.

VII. *The seventh Sweet Water.*

Take green peels of Oranges and Citrons, of each four ounces, Cloves half a dram, Flowers of Spike six ounces, *Aqua Rosarum Damascenarum* six pound, digest ten days, then distil in *Balneo*.

VIII. *The eighth Sweet Water.*

Take of the Water of the fifth Section six pound, Musk ten grains, mix and digest them for use.

IX. *The ninth Sweet Water.*

Take *Aqua Rosarum*, *Aqua Florum de Jasemin*, of each four pound, Musk one scruple, digest ten days, then distil in Sand.

X. *The tenth Sweet Water.*

Take Damask-roses, Musk-roses, Orange-flowers, of each four pound, Cloves two ounces, Nutmegs one ounce, distil in an Alembick, in the nose of which hang Musk three scruples, Amber two scruples, Civet one scruple, tyed up in a rag dipt in bran, and the White of an Egg mixed.

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XI. *The eleventh Sweet Water, called Aqua Nanfa, or Naphe.*

Take *Aqua Rosarum* four pound, Orange-flower water two pound, waters of sweet Trefoil, Lavender, Sweet Marjoram, of each eight ounces, Benjamin two ounces, Storax one ounce, Labdanum half an ounce, Mace, Cloves, Cinnamon, Sanders, *Lignum Aloes*, of each one ounce, Spicknard one ounce; all being grossly beaten, digest a Month, then in a glass retort distil in *Balneo*.

XII. *The twelfth Sweet Water, called Aqua Moschata.*

Take Spirit of Wine rectified to the highest two pound, Musk three scruples, Ambergrise two scruples, Civet one scruple, digest in the Sun twenty days close stopt in a glass vessel; a drop of this water put into any other liquor, will very well perfume it.

So may you extract the scent out of sweet Flowers, with this difference, that they lie but a little while, because their earthy substance will make the spirit ill-savour'd.

XIII. *The thirteenth Sweet Water.*

Take a quart of Orange-flower water, and as much Damask Rose-water: add thereto Musk-willow seeds, grossly bruised, four ounces, Benjamin two ounces, Styrax one ounce, Labdanum six drams, Lavender flowers two pugils, musked Cranesbill three pugils, Sweet Marjoram as much, *Calamus Aromaticus* a dram, distil all in a glass Stillatory in *Balneo*, the Joints being well closed that no vapor get out.

XIV. *The fourteenth Sweet Water.*

Take Benjamin, Storax *Calamita*, of each two ounces; Cloves, Winter Cinnamon in powder, of each one ounce; Orange peels, Limon peels, (the yellow) of each half an ounce; Musk seeds an ounce and half; Spirit of Wine a quart: digest twenty days, shaking it every day: then decant the clear, and add Musk, Ambergrise in fine powder, ana five grains: mix them well, and keep them together for use.

XV. *The Queen's Perfumed Water.*

Take Damask Rose-water a gallon, Orange-flower-water two quarts; Sweet Marjoram water, Angelica water, of each a quart; Winter Cinnamon, yellow of Orange and Limon peels, *Jamaica Pepper*, of each two ounces; Cloves, Cinnamon, Nutmegs, of each half an ounce; yellow Sanders, *Sassafras*, Rhodium, of each one ounce;

ounce; Benjamin eight ounces: All the ingredients being in fine powder, put them to the waters in a glass bottle, adding Spirit of Wine a quart; digest in a gentle Sand heat for a Month, then decant the clear water, and add to it, if you so please, Musk in fine powder a scruple, Ambergrise ten grains, tied up in a Nodule, which let lye in the liquor so long as it lasts.

XVI. *Another excellent Perfumed Water.*

Take Damask Rose-water a Gallon, Spirit of Wine a quart; Benjamin, *Syrax Calamita*, yellow Sanders, Musk seeds, of each fourteen ounces; Sassafras, Winter Cinnamon, of each two ounces: Orrice Root three ounces; Cloves, Nutmegs, *Cassia Ligna*, Wood of Aloes, yellow of Limon and Orange peels, of each half an ounce: Musk in fine powder a scruple, mixt with double refined Sugar half an ounce; the ingredients being each a part made into fine powder, mix altogether, and digest in a gentle Sand heat for fourty days; and keep the Water for use.

XVII. *An excellent Perfumed and Colored Water.*

Take Damask Rose leaves fresh gathered, Clove-gilliflowers, Violets, or any other Sweet and Aromatick Flower, put them into an Alembick, and affuse thereon a sufficient quantity of fair water impregnated with Spirits of Salt, (an ounce of Spirit to a pint of Water:) fill the Alembick full of the Flowers, and this impregnated water: digest xxiv. hours till you see your water is well colored: then decant the clear liquor, so will it have the color and sinell of the Roses, or other Flowers, as if they were fresh gathered.

CHAP. XII.

Of Perfuming Oils and Spirits.

I. **T**O make Perfuming Oils by Infusion.

This is taught fully at the fifth Section of the tenth Chapter aforegoing.

II. *To make Oleum Imperiale.*

Take Ambergrise four drams, *Storax Calamita* eight ounces,

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ounces, Rose-water, *Oleum Rosatum*, of each two pound, Oil of Cinnamon and Cloves, of each half a dram, put all into a glass, and digest in Horse-dung twenty days: this done, gently boil all for a quarter of an hour, which then let cool; with a spoon take off the Oil which swims a top, to which put of Musk and Civet, of each two drams, digest all in a gentle heat for twenty days, and keep it for use. Where note the Amber and Storax at bottom will serve to make Sweet Balls of, to lay among Cloths, or Beads to carry in ones hands; or for a Perfume to burn.

III. To make Oil of Cinnamon.

Digest Cinnamon grossly bruised in spirit of Wine, sharpened with Oil of Salt, in a glass vessel, with a blind head closely luted, in a gentle heat for ten days, then distil in an Alembick, as we have more at large taught in our *Pharmacop. Lond. lib. 4. cap. 3. sect. 12.* it is a wonderful Perfume, the most fragrant and pleasant of all Oils, as well in taste as smell: the use of it will certainly take away a stinking Breath.

IV. To make Oil of Roses, called adeps Rosarum.

Take Damask Roses, pickle them with Bay Salt, and after three Months, with a large quantity of water distil in ashes with a gentle fire, so have you Oil, and Spirit, or water, which keep for other distillations. *Wickerus* hath it thus,

Rosarum folia in umbra aliquandiu asservata in matula vitrea magna ponuntur, cujus sit fundus latus, & ad dimidium vas impletur: inde affunditur ipsis Rosarum foliis tantum aqua rosacea stillatitia, quantum satis fuerit, ut optime madeant: appositoque pileo vitreo caeco, stipatisque optime rimis cera gummata, quindecim diebus equino simo macerantur: sic tamen, ut mutato, cum frigescere ceperit, simo, calor equalis servetur. Apposito mox matula rostrato pileo, igne moderato cinerum, aqua omnis elicitur: qua rursus in eadem matula, optime prius à facibus mundata ablutaque ponitur, & calentis aqua balneo lentissimo igne elicitur, dum tota in vas recipiens abeat. Nam in fundo matula remanebit oleum rosarum, colore rubrum, perspicuum, & Moschi odore suaviter fragrans.

This is the greatest of all vegetable Perfumes, and of an inestimable value. See the best way of making it in my *Pharm. Bateana, lib. 1. cap. 2. sect. 69. 7, 8, & 9.*

V. To make Oil of *Calamus Aromaticus*.

It is made as Oil of Cinnamon : it is a very great Perfume, helps a Stinking Breath, Vomiting, weak Memory, &c.

VI. To make Oil of *Rhodium*.

It is made as Oil of Cinnamon : is a very excellent Perfume, good for the Head, Breath, and the Senses.

VII. To make Oil of *Indian Spicknard*.

By infusion it is made by the first Section ; by distillation, as Oil of Cinnamon. It is an eminent Perfume.

VIII. To make Oil of *Benjamin*.

Take Benjamin six ounces in powder, which dissolve in Oil of Tartar, and *Aqua Rosarum*, of each one pound, which distil with a close pipe in an Alembick. So is made Oil of *Storax* and *Labdanum*.

IX. To make Oil of *Storax* compound.

Take Oil of Ben, or sweet Almonds, one pound ; *Storax* grossly beaten four ounces ; Benjamin, Cloves, of each two ounces, digest (till the Gums are melted) over hot Coals ; then press out the Oil diligently.

X. To make Spirit of *Ambergrise*.

Take of the best rectified Spirit of Wine, a pint ; Oil of Salt half an ounce, Ambergrise, Musk (both in fine powder) of each two drams, seal up the glass hermetically, and digest in a very gentle heat, till the Tincture is fully drawn out ; three or four drops of this Spirit will Perfume a pint of any Liquor richly. Or you may put a drop or two round the brims of a drinking-glass ; half a spoonful of it mixt with a fit Vehicle, is a rich Cordial.

C H A P. XIII.

Of Perfuming Essences.

I. **T**HE way to extract Essences is somewhat difficult, viz. by Distillation, Calcination, Digestion or Menstruum.

II. If by a *Menstruum*, use not a watry one for a watry Essence ; nor an oily one for an oily Essence ; because being of like natures, they are not easily separated ; but

but on the contrary, chuse an oily *Menstruum* for a watry Essence, and a watry *Menstruum* for an oily Essence.

III. If the Essence of any Metal be to be extracted by a *Corrosive Menstruum*, after the work is done, separate the Salts from the Waters, and use only those Salts which will be easily taken out again; *Vitriol* and *Alom* are very difficult to be separated by reason of their earthy substance.

IV. To extract the Essence out of *Musk*, *Ambergrise*, *Civet*, and other *Spices* or *Aromaticks*.

Mix the Perfume with Oil of Ben, which in a glass bottle set in the Sun or Sand for ten days, then strain it from the dregs, and the Essence will be imbibed in the Oil. Then take Spirit of Wine, and distilled fountain water, which mix with the said Oil, and digest for six days, then distil in Sand; so will the Essence and water ascend, (the Oil remaining at bottom without any scent) that essence and water distil in *Balneo* in a glass vessel, till the water be come off, and leave the Essence in the bottom in the form of Oil.

V. Another way to do the same.

Infuse the matter in Spirit of Wine a sufficient quantity, mixt with a tenth part of Oil of Salt, or Sulphur, digest for ten days, then distil in Sand, as long as any water will come over (but have a care of burning) which distilled Liquor draw off in *Balneo*, with a very gentle heat, and the quintessence will be left in the bottom, of a liquid form.

VI. To extract the Essence out of *Herbs* and *Flowers*, as of *Sweet Marjoram*, *Basil*, *Orange-flowers*, *Jasemin*, &c.

Bruise the matter, and put it into a glass vessel to ferment in Horse-dung for a Month, then distil in *Balneo*: set it in dung for a week again, and distil in *Balneo* again; which reiterate so long as it will yield any liquor; put the distilled matter upon the *Caput mortuum*, distilling thus for six days; draw off the water in *Balneo*; and the Essence remaining express in a press: which being a week fermented in dung, will yield the perfect scent, colour and vertues of the matter desired.

VII. To extract the Essence out of *Salts*.

Calcine the Salt, and grind it very small, then lay it upon a Marble in a moist Cellar, setting under it a pan to receive the dissolution; therein let it ferment for a Month,

Month, then with a gentle fire distil in *Balneo*: cast away the insipid water, which comes from it; and set that which remains in the bottom, to ferment another Month, then distil out the insipid water, as before; repeating this work so long as any insipid water may be drawn: then evaporate away all the moisture, and what remains is the quintessence of Salt.

Where Note, 1. That these Saline quintessences as they may be used, will draw forth the perfect and compleat essence of any vegetable whatsoever. 2. That the essence of Salts thus drawn, will scarcely come to two ounces in a pound.

VIII. Essence of Cinnamon.

Take Oil of Nutmegs, by expression, eight ounces: Oil of Cinnamon four ounces; mix perfectly, and keep it for use.

IX. A Liquid Essence of Cinnamon.

Take Chymical Oil of Nutmegs three ounces: Oil of Cloves one ounce; Oil of Cinnamon eight ounces: mix, digest ten days, and keep it for use.

CHAP. XIV.

Of Perfuming Unguents.

I. TO make Unguentum Pomatum, or Ointment of Apples.

Take Calves Suet three pound, Oil of Ben one pound, Sheeps Suet nine ounces, bruised Cloves one dram, *Aqua Rosarum* two ounces, Pomwaters pared and sliced one pound, boil all to the Consumption of the Rose-water; then strain without pressing, to every pound of which add Oil of *Rhodium* and Cinnamon, of each thirty drops.

II. To make a compound Pomatum.

Take of the Pomatum aforesaid, (without the Oils) four pound, Spicknard, Cloves, of each two ounces; Cinnamon, Storax, Benjamin, of each one ounce, (the Spices and Gums bruised and tyed up in a thin rag) Rose-water eight ounces; boil to the Consumption of the Rose-water, then add white wax eight ounces, which mix well by melting, strain it again, being hot; and when

Chap. 15. Of Perfuming Pouders. 409

it is almost cold, mix therewith Oil of Musk (made by the first Section of the twelfth Chapter) then put it out, and keep it for use.

III. Another excellent Ointment.

Take Calves Suet, one pound, Oil of Ben six ounces, *Saccharum Saturni* two ounces, mix them well by gently melting them; to which add Oils of Musk and Ambergrise, of each half an ounce, let them all cool, and beat the Unguent well in a Mortar, and keep it for use.

IV. To make Unguentum Moschatum.

Take Lambs Suet one pound, Oil of Ben six ounces, Ambergrise, Mosch, of each one dram and a half, (ground with Oil of Jasemin upon a Marble) *adepts Rosarum* half an ounce, (ground with Civet one dram) mix all together into an Ointment, which keep for use.

V. A good Pomatum.

Take Sheeps Suet two pounds; Oil of Ben one pound: mix them over a gentle heat; add to them Oil of Tartar *per deliquium* one ounce: when well mixt, cast all into warm waver, stir them well together; then let it stand and cool: then gather the fat substance from the top of the water, and mix with it Chymical Oil of Oranges, and of Limons, of each half an ounce, and keep it in a pot close covered for use.

Note, *Hogs Lard* is not to be used in these Compositions, because it quickly grows rank, and stinks.

CHAP. XV.

Of Perfuming Pouders.

I. TO make Powder of Ox dung.

Take red Ox dung in the Month of May and dry it well, make it into an impalpable Powder by grinding: it is an excellent Perfume without any other addition; yet if you add to one pound of the former, Musk, and Ambergrise, of each one dram, it will be beyond comparison.

II. To make Cyprian Powder.

Gather Musk-moss of the Oak in December, January or February, wash it very clean in Rose-water, then dry it,

it, steep it in Rose-water for two days, then dry it again, which do often times; then bring it into fine powder and searce it; of which take one pound, Musk one ounce, Ambergrise half an ounce, Civet two drams, yellow Sanders in powder two ounces, mix all well together in a Marble mortar.

III. *Another way to make the same.*

Take of the aforesaid Powder of Oak-moss one pound, Benjamin, Storax, of each two ounces in fine Powder; Musk, Ambergrise and Civet, of each three drams, mix them well in a mortar.

IV. *A Sweet Damask Powder to lay among Cloaths.*

Take Damask-rose leaves dyed one pound, Musk half a dram, Orrice root, sweet Marjoram, yellow Sanders, Wood of Aloes, Sassafras, of each three ounces; mix them, and put them in a bag.

V. *Another for the same, or to wear about one.*

Take Rose leaves dried one pound, Cloves in powder half an ounce, Spicknard two dram, Storax, Cinnamon, of each three drams, Musk half a dram, mix them, and put them into bags for use.

VI. *Powder of Sweet Orrice, the first way.*

Take Florentine Orrice-root in Powder one pound, Benjamin, Cloves, of each four ounces in powder, mix them.

VII. *Powder of Florentine Orrice, the second way.*

Take of Orrice-root six ounces, Rose leaves in powder four ounces, Marjoram; Cloves, Storax in powder, of each one ounce, Benjamin, yellow Sanders, of each half an ounce, Xylo aloes four ounces, Musk one dram, Cyprus half a dram, mix them; being grossly powdered, put them into bags to lay amongst linnen: but being fine, they will serve for other use, as we shall shew.

VIII. *Powder of Orrice-roots, the third way, excellent for linnen in bags.*

Take roots of Orrice, Damask Roses, of each one pound, Sweet Marjoram twelve ounces, flowers of Rosemary, and Roman Camomil, leaves of Time, Geranium Moschatum, Savory, of each four ounces, Cyprus roots, Benjamin, Xylo aloes, yellow Sanders, *Lignum Rhodium*, Citron peel, Storax, Labdanum, Cloves, Cinnamon, of each one ounce; Musk two drams, Civet one dram and a half, Ambergrise one dram, powder and mix them for bags. This composition will retain its strength near twenty years.

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IX. Powder of Orrice, the fourth way.

Take Orrice roots in powder one pound, *Calamus Aromaticus*, Cloves, dried Rose leaves, Coriander seed, *Geranium Moschatum*, of each three ounces, *Lignum Aloes*, Marjoram, Orange peels, of each one ounce, Storax one ounce and a half, *Labdanum* half an ounce, Lavender, Spicknard, of each four ounces, powder all, and mix them, to which add Musk, Ambergrise, of each two scruples.

X. *Pulvis Calami Aromatici compositus.*

Take *Calamus Aromaticus*, yellow Sanders, of each one ounce; Marjoram, *Geranium Moschatum*, of each one ounce; Rose leaves, Violets, of each two drams, Nutmegs, Cloves, of each one dram; Musk half a dram, make all into powder, which put in bags for Linnen.

XI. Another of the same.

Take *Calamus Aromaticus*, Florentine Orrice roots, of each two ounces, Violet flowers dried one ounce, round Cyprus roots two drams; *adeps Rosarum* one dram and a half, reduce all into a very fine powder: it is excellent to lay among Linnen, or to strew in the Hair.

XII. An excellent perfuming Powder for the Hair.

Take Orrice roots in fine powder one ounce and a half, Benjamin, Storax, Cloves, Musk, of each two drams; being all in fine Powder, mix them for a Perfume for Hair Powder. Take of this Perfume one dram, Rice-flower impalpable one pound, mix them for a powder for the Hair. Note, some use white Starch, flour of French Beans, and the like.

XIII. A Sweet Powder for a Silk Bag.

Take Benjamin, Storax *Calamita*, Cloves, *Lignum Aloes*, of each two ounces; yellow Sanders three ounces, Florentine Orrice six ounces, Musk half a dram, mingle them.

XIV. Another for the same.

Take Florentine Orrice, Spicknard, Sweet Marjoram dried, *Geranium Moschatum*, of each four ounces; Damask Roses, Cypress, Lavender Flowers, of each three ounces; Benjamin, *Lignum Rhodium*, of each an ounce, mix them.

XV. A Damask Powder for the like intention.

Take Damask Roses, yellow Sanders, *Lignum Aloes*,
of

of each four ounces ; *Benjamin*, Spicknard, Cyprefs, of each two ounces, mingle them together.

XVI. *Another for the same purpose.*

Take Damask Rose leaves a handful, cut off the whites, put them in a glafs, and put to them Musk half a scruple, Ambergrife six grains, Civet four grains, stop the glafs close, and set it in the Sun till the leaves be thoroughly dry.

XVII. *A Powder for a Sweet Bag.*

Take Orrice, Cyprefs, white Sanders, Lavender, Damask Roses, of each four ounces ; *Calamus*, *Storax Calamita*, *Benjamin*, Sweet Basil, Sweet Marjoram, *Geranium Moschatum*, of each two ounces ; Cloves, Rosemary flowers, of each one ounce, mix them.

XVIII. *Damask Powder for a Sweet Bag.*

Take Damask Roses four ounces and a half ; Marjoram, Orrice, of each four ounces ; *Geranium Moschatum* three ounces ; *Labdanum* two ounces and a half, *Lignum Aloes*, white Sanders, Cloves, Cyprefs, *Benjamin*, *Calamus*, of each two ounces ; Musk, Oil of Savin, of each one dram, mingle them.

XIX. *White Damask Powder very fine for Hair.*

Take Orrice in powder, white Starch, of each eight ounces ; fine Musk a scruple, mix it first with a little, then with more, and lastly with the whole by degrees, the longer it is kept the better.

XX. *Another Damask Powder in Groß.*

Take Damask Roses two ounces and a half ; *Calamus*, Orrice, Cyprefs, *Geranium Moschatum*, Lavender flowers, Sweet Marjoram, *Labdanum*, of each two ounces ; *Benjamin*, *Storax Calamita*, of each an ounce and half ; *Nigella Romana* one ounce ; Musk a dram, mingle them.

XXI. *Another Damask Powder.*

Take Orrice four ounces ; Cloves two ounces ; *Labdanum*, Cyprefs, *Benjamin*, of each one ounce ; *Calamus*, *Storax Calamita*, of each half an ounce ; Civet, Musk, of each ten grains, mix them.

XXII. *Another Sweet Powder.*

Take Orrice six ounces ; Cloves four ounces ; yellow Sanders, *Storax Calamita*, ana two ounces, *Labdanum* one ounce, Musk a scruple, make a Powder.

XXIII. *An excellent Sweet Bag.*

Take Florentine Orrice three pounds, *Calamus Aromaticus*, *Lignum Rhodium*, of each one pound; yellow Sanders ten ounces, Benjamin in gross pouders eight ounces, Cinnamon in pouders four ounces, Cloves in pouders two ounces, mix them for a bag.

XXIV. *Another Powder for Sweet Bags.*

Take Damask Roses four pounds, shavings or raspings of *Lignum Rhodium* three pounds, Florentine Orris in pouders two pounds; yellow Sanders, *Calamus Aromaticus*, Galingal, Cinnamon, Cloves, yellow of Citron, Lemon, and Orange peels, ana four ounces; Benjamin, *Syrax Calamita*, ana two ounces; beat all in a Mortar to a fine pouders, and sift it thro' a hair Sieve, &c.

XXV. *A Cypress Powder.*

Take Musk-moss four pounds, steep it in Damask Rose-water two quarts, mixt with Powers of Rhodium, Sweet Marjoram, and of Savin, of each four ounces; after it has lain xlviii. hours, take it out and dry it; infuse it again for as long a time, take it out and dry it, and repeat this to the fourth time, then reduce it to a fine pouders; to which add yellow Sanders in pouders eight ounces, Musk in pouders four drams: Ambergrise two drams: Civet a dram: mix them all well together in a Marble Mortar.

XXVI. *A Perfuming Powder.*

Take Musk-seed eight ounces, Musk four ounces, Ambergrise two ounces, Cloves two ounces, *Virginia Snake-root* one ounce; make each apart into fine pouders, then mix them, and add thereto Civet half an ounce; mix them well in a Stone Mortar, and keep it for use. With this you may Perfume Hair Powder, Sweet Bags, and other like things.

XXVII. *To make Grounds for White Powder.*

Take Cuttle-bone in fine pouders twelve pounds, white Starch eight pounds, Orrice pouders, fine bone Ashes, of each one pound; each being in fine pouders, mix them together, and pass them through a fine hair Sieve.

XXVIII. *Another for the same.*

Take pure white Starch, Rice, each in fine pouders, of each twelve pounds; Florentine Orrice in fine pouders three pound: mix them.

XXIX. *A Ground for Grey Powder.*

Take what remains at Sect. 27. above, which beat again, and add to every pound thereof, white Starch eight ounces, yellow Oaker two ounces, Charcole a small quantity, all being in fine powder, pass it through a hair Sieve, and keep it for use ; and to be perfumed as you shall see fit.

XXX. *Another Brown Powder.*

Take Rotten Wood, beat it to a small powder, and pass it through a hair Sieve, and then perfume it.

XXXI. *A Perfume for ordinary Powder.*

Take Florentine Orrice in fine powder two pounds ; Damask Roses in fine powder, Musk-seeds in powder, of each one pound ; Benjamin four ounces, yellow Sanders in powder three ounces, Storax two ounces, Citron peels in powder one ounce, Cloves in powder half an ounce ; mix them : this will serve for forty pounds of white Starch in fine powder, being mixt together, by passing them through a hair Sieve.

XXXII. *An excellent Amber Powder.*

Take Rotten Wood, Bean-flower, of each eight ounces ; yellow Sanders, *Lignum Rhodium*, of each four ounces ; Cypress Wood, Sassafras, of each three ounces, Benjamin two ounces ; *Storax Calamita* one ounce, *Calamus Aromaticus* half an ounce ; make each apart into fine powder, and mix them. Then take Machaleb, or Musk-seeds in powder two ounces, Musk ten grains, Ambergrise six grains, both in powder ; mix these three things together, and then put them to the former mixture, and keep it in a glass close stoppt for use.

C H A P. XVI.

*Of Perfuming Balsams.*I. *Natural Balsams perfumed.*

Take *Balsamum verum* one ounce, Musk, Ambergrise, Civet, of each two scruples ; mix them for a Perfume : it is the most fragrant and durable of all Perfumes.

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II. *An odoriferous compound Balsam.*

Take of the aforesaid Balsam perfumed one ounce, Oils of *Rhodium* and Cinnamon, of each two drams, mix them: this is an incomparable Perfume, and better than the other for such as are not affected so much with Musk.

III. *Balsamum Moschatum.*

Take Oil of Musk one dram, Oil of Cinnamon half a scruple, Virgin Wax one dram and a half, melt the Wax, and mix them according to Art.

IV. *Another very good.*

Take Cloves, Cinnamon, Lavender, Nutmegs, of each two drams, Oils of Cloves and *Rhodium*, of each half a dram, Wax three drams, Musk and Ambergrise, of each ten grains, mix them into a Balsam.

V. *Another very excellent for those that love not the scent of Musk, and the like.*

Take Oil of *Geranium Moschatum*, (made as *adepts Rosarum* by the fourth Section of the twelfth Chapter) *adepts Rosarum*, Oil of Cinnamon, of each one dram, Virgin wax six drams, melt the Wax, and mix the Oils for a Perfume.

C H A P. XVII.

Of Perfuming Tablets.

I. **T**O make red Muscardines or Tablets.

Dissolve Gum *Tragacanth* in Rose-water, so that it may be as thick as Gelly: which make into paste with the following composition. Take *Amylum* one pound, fine Sugar half a pound, *Cochenele* two ounces, Musk three drams, all being in fine powder, mix them, and make Tablets with the aforesaid Mucilage of *Tragacanth*, square, long, round, or of what form you please, which dry in an Oven, out of which Bread hath been lately drawn: but be sure you dry them till they be as hard as horns.

II. *Another sort of Red Tablets.*

Take of the aforesaid composition one pound, Cloves,
H h 2 Cinnamon,

Cinnamon, Nutmegs, Ginger, of each two ounces, *Cochenele* one ounce, all being in fine powder, make into Tablets, with the aforesaid Mucilage, and dry as aforesaid.

III. *To make Yellow Tablets.*

Take *Amylum* one pound, fine Sugar half a pound, yellow Sanders four ounces, Saffron two ounces, (or you may dip the *Amylum* in strong tincture of Saffron, and then dry it again) Musk four drams, all being in fine powder, make the Mass into Tablets, with the aforesaid Mucilage, adding Oil of Cinnamon in drops two drams, dry them carefully in the shade.

IV. *Another sort of Yellow Tablets.*

Take *Amylum* dried with tincture of Saffron one pound, Sugar half a pound, Saffron two ounces, Nutmegs, Cinnamon, Ginger, of each one ounce; Carraways half an ounce, Musk three drams, Ambergrise one dram, all in fine powder make into Tablets, as aforesaid, adding Oil of Cinnamon two drams; which dry in the shade, till they be as hard as horn.

V. *To make Muscardines or Tablets of any other colour.*

You must make them after the same manner, only adding the colour you do intend; and in this case we think that it is better that the *Amylum* be dipt in the tincture, and dried first before you use it. Where note, that these Tablets, when used, are to be held in the mouth, in which they will dissolve, thereby cheering the Heart, reviving the Senses, comforting the Spirits, strengthening Nature, restoring the Body, and indeed nobly perfuming the Breath. For them that do not love Musk, you may make them without, using instead thereof, so much the more Oil of Roses or Cinnamon.

CHAP. XVIII.

Of making Pomanders for Bracelets.

I. **T**HE first sort. Take Orrice powder, Cloves, Mace, Cinnamon, of each half an ounce; yellow Sanders, *Styrax*, sweet *Assa*, of each two drams; Ambergrise, Musk,

Musk, *Cinnamon*, of each half an ounce, all being in fine powder, make into Tablets, with the aforesaid Mucilage, and dry as aforesaid.

II. *To make Yellow Tablets.*
one dram, Mace, grains; Mucilage

III. *To make Yellow Tablets.*
gulated berggrise, *Cinnamon*, Rose-w

IV. *To make Yellow Tablets.*
an ounce, one dram, mander,

V. *To make Yellow Tablets.*
Marjoram, Orrice, *Rhodium*, jacin, *Cinnamon*, Labdanum, scruple; ter mak

VI. *To make Yellow Tablets.*
Basil, thyme, Marjoram, Cypress, ple, *Amylum*, Mucilage, mander,

VII. *To make Yellow Tablets.*
rax, Cloves, berggrise, Wax, an Bays ha together

VIII. *To make Yellow Tablets.*
Wax tw Sanders,

Chap. 18. Of Pomanders for Bracelets. 417

Musk, of each one dram ; Balsam of *Peru*, Oil of *Rhodinum*, of each one scruple ; Civet two drams, all being in fine powder (except the Balsam and Oil) mix together, and make into paste with Mucilage aforesaid, of which form Beads, drying them in the shade for use.

II. *The second sort.* Take *Storax*, *Labdanum*, of each one dram and a half ; Benjamin one dram, Cloves, Mace, Spicknard, *Geranium Moschatum*, of each ten grains ; Musk, Ambergrise, of each six grains ; with Mucilage make a Pomander for Bracelets.

III. *The third sort.* Take Damask Rose leaves exungulated two ounces, beat them impalpable : Musk, Ambergrise, of each two scruples, Civet one scruple, *Labdanum* one dram with Mucilage of Gum *Tragacanth*, in Rose-water aforesaid, make a Pomander for Bracelets.

IV. *The fourth sort.* Take *Storax*, Benjamin, of each an ounce and half, Musk two drams, Oil of Cinnamon one dram, with Mucilage aforesaid make a paste of Pomander, very excellent.

V. *The fifth sort.* Take Spicknard an ounce, sweet Marjoram, *Geranium Moschatum*, of each half an ounce ; Orrice, Cloves, of each two drams, *Calamus*, *Lignum Rhodium*, *Lignum Aloes*, of each a dram ; Cypress, Benjamin, Cinnamon, white Sanders, of each a scruple ; *Labdanum*, *Syrax Calamita*, and *Liquida*, of each half a scruple ; with Mucilage of Gum *Tragacanth* in Rose-water make a paste for Pomanders.

VI. *The sixth sort.* Take *Storax Calamita* two ounces, *Basil* three ounces, Cloves an ounce and half, Benjamin, Marjoram, *Storax liquid*, of each one ounce ; *Calamus*, Cypress, *Labdanum*, of each half an ounce ; Musk a scruple, Ambergrise twelve grains, Civet six grains, with Mucilage of Gum *Tragacanth* in Rose-water make Pomanders.

VII. *The seventh sort.* Take *Labdanum* an ounce, *Storax*, Cloves, Mace, Cinnamon, of each three drams, Ambergrise, Musk, of each a dram and a half, Virgin Wax an ounce, mixt with Sweet or Chymical Oil of Bays half an ounce, dissolve, mix and work them well together.

VIII. *The eighth may.* Take *Labdanum* six ounces, Wax two ounces, Camphire, *Calamus*, Myrrh, yellow Sanders, Wood of Aloes, Olibanum, Mastic, of each

two drams; Cinnamon, Cloves, Zedoary, Storax, Calamint, of each a dram and a half; Musk, Ambergrise, of each a scruple; put them into a Mortar, and with a little Malmsey, make a mass for *Pomanders*.

IX. *The ninth sort.* Make Gum *Tragacanth* half a pound into a Mucilage with Damask Rose-water Muskified, to which add *Storax Calamita* nine ounces, Nutmegs four ounces, *Labdanum* three ounces, Cinnamon, Cloves, Camphire, liquid Storax, natural Balsam, of each one ounce: put the *Labdanum* into the Mortar, with a little Oil of Spike, and then the other things, which beat into a paste, with powder of black fallow Charcole.

X. *The tenth sort.* Take strong Mucilage of Gum *Tragacanth*, in Rosewater, which make into paste with Musk and Ambergrise in fine powder, of each a like quantity; then anointing your palm and fingers with Oil of Musk, or some other sweet Oil, as of Lavender, or the like, form them into round little Balls or Beads, which put upon a string, and dry them between two papers; being dried, keep them close from the Air, till you have occasion to use them.

XI. *The eleventh sort.* Take Cloves four ounces, powder of *Contrayerva*, *Virginia* Snake root, of each three ounces; Winter Cinnamon two ounces, Liquid Storax one ounce, Mucilage of Gum *Tragacanth* a sufficient quantity: make them into a paste by beating in a mortar: and your hands being anointed with Oil of Ben, mixt with equal quantities of Oil of *Rhodium*, or Oranges, or Limons; form them into round little Beads, which put upon a Silver Wire, and dry them.

XII. *Pastils of Roses.* Take Damask Roses half blown cut off from the whites, Benjamin in powder, of each four ounces; Musk in fine powder, Ambergrise in fine powder, and a five grains: beat all together in a mortar to a paste; then add Oil of Oranges or Limons, or of Savin, one dram: mix well and make a Paste, &c.

XIII. *Another more rich.* Take Benjamin in fine powder four ounces, Cloves in powder, Storax liquid, of each two ounces; *Lignum Aloes* in fine powder one ounce: Musk, Ambergrise, of each one dram in fine powder: beat all in a mortar to a paste, adding more Storax as you see occasion; and so make it up into Beads.

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C H A P. XIX.

Of Perfuming Wash-Balls.

I. **T**O make Barbers Wash-Balls.

Take purified *Venetian Soap* six ounces, *Macaleb* four ounces, *Ireos*, *Amylum*, of each seven ounces; *Cloves* two ounces, *Labdanum*, *Anniseeds*, of each one ounce; *Nutmegs*, *Marjoram*, *Cypress powder*, *Geranium Moschatum*, *Camphire*, of each half an ounce, *Storax liquida* half a dram, *Musk* ten grains, all being in fine powder, with a little fine Sugar, beat all in a mortar, and make them up into Wash-balls.

II. *To do the same another way.*

Take of the said Soap two pound, juice of *Macaleb* two ounces, *Cloves*, *Orrice*, of each three ounces, *Labdanum* two ounces, *Storax* one ounce, all being in fine powder, mix with the Soap, of which make Balls, drying them in the shadow.

III. *To make Balls of white Soap.*

Take of white Soap five pound, *Orrice* four ounces, *Amylum*, white Sanders, of each three ounces, *Storax* one ounce, all in powder, steep in Musk-water, of which make paste for wash-balls.

IV. *Another sort very good.*

Take of white Soap four pound, *Orrice* six ounces, *Macaleb* three ounces, *Cloves* two ounces, all in powder; mix with the Soap a little Oil of Spike, *Rhodinum*, or the like, of which make Balls.

V. *Another way to make them of Goats Fat.*

Make a strong *Lixivium* of Pot-ashes, as that a new laid Egg will swim thereupon, which boil with Citron peels: take of this Lye twenty pound, Goats Fat two pound, boil it for an hour, then strain it through a linnen cloth into broad Platters of fair water, exposing it to the Sun, mix it often every day till it begins to grow hard, of which you may form Balls, which you may Perfume with Musk half a dram, Civet one scruple, Oil of Cinnamon ten drops.

VI. *To make common Wash-Balls, the best of that kind.*

Take Venice or Castle Soap sliced very thin, four pounds, Spirit of Wine half a pint, beat all together; then add Chymical Oil of Sassafras, or Limons, an ounce or more; and beat again very well: Lastly, add white Starch made into a Paste with water, by boiling a sufficient quantity to make all into an even and smooth Mass, which form into Balls of four ounces a piece, with powder of white Starch, dry them and keep them for use.

VII. *To make the best Bologna Wash-Balls.*

Take Genoa Soap, white and pure, sliced thin, eight pounds; unslacked Lime two pounds; *Aqua Vita* a quart: beat them well together in a Mortar, and let them lie together for 48 hours; then spread it abroad, and lay it a drying: being dry, beat it in a Mortar, and add to it *Macaleb*, or Musk-seeds in fine powder, yellow Sanders in fine powder, Orrice-root also in powder, of each eight ounces: mix, and beat them up into a Paste with Whites of Eggs *q. s.* and two pounds of Gum *Tragacanth* dissolved in Damask Rose-water, and so make the Mass up into Wash Balls.

VIII. *Another sort of Wash-Balls.*

Take Genoa Soap sliced thin twenty pounds, *Aqua Vita* two quarts; mix, and dissolve over a fire; the Soap being melted, add thereto white Starch in fine powder five pounds: Orrice powder four pounds: whites of Eggs N^o. twenty; Mucilage of Gum *Tragacanth q. s.* mix, and make a Paste: to which add Benjamin eight ounces: *Storax*, yellow Sanders, of each six ounces; Cloves, Winters Cinnamon, Sassafras, of each four ounces: Nutmegs two ounces; Musk-seeds ten ounces; each made apart into fine powder: beat all up into a Mass, and make Wash-Balls of what bigness you please.

IX. *A very good sort of Wash-Balls.*

Take Genoa Soap thin sliced ten pounds; *Aqua Vita* a quart; mix, and melt them over a gentle fire, evaporating away part of the *Aqua Vita*: then add Orrice in fine powder two pounds: and with Mucilage of Gum *Tragacanth q. s.* beat it into a Paste, of which form Wash Balls; dry them, and keep them for use.

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C H A P. XX.

Of Perfuming Soaps.

I. *TO purifie Venetian Soap.*

Cut it small, to which put some Rose-water, or other Perfuming water, boil them a while, then strain it, and it will be sweet and good, then take off the Soap which swims a top with a spoon, and lay it upon a Tyle, and it will presently be dry; being white, free from filth and unctuousity.

II. *Another way to do the same.*

Grate the Soap, and dry it in the Sun, or an Oven, poulder and searce it, then moisten it with some sweet water, or Oil of Spike, which dry again (in the shadow) and keep it for use.

III. *To make white musked Soap.*

Take white Soap purified as aforesaid three pound, Milk of *Macaleb* one ounce, Musk, Civet, of each ten grains; mix them, and make all into thick cakes or rouls.

IV. *Another kind of sweet Soap.*

Take of the oldest *Venice* Soap, which scrape and dry three days in the Sun (purifying it as aforesaid) two pound, Orrice, *Amylum*, of each six ounces; *Storax liquida* two ounces. mix them whilst hot: which put into Pans to form Cakes.

V. *To make soft Soap of Naples.*

Take of *Lixivium* of Pot-ashes (so strong as to bear an Egg) sixteen pound, Deers Suet two pound, set them upon the fire to simmer; put all into a glazed Vessel with a large bottom, set it in the Sun for a while, stirring it five or six times a day with a stick, till it wax hard like Paste. Then take this Paste, to which put musked Rose-water *q. s.* keep it eight days in the Sun, stirring it as aforesaid, so long as it may neither be too hard nor too soft; then put it up in Boxes or Pots.

VI. *To make the same Soap musked.*

Put to the said Soap, Rose-water two pound, fine Musk in poulder half a dram, then mix the said water as before.

VII. *Ano-*

VII. *Another exquisite Soap.*

Take of the aforeſaid *Lixivium*, or Oil of Tartar *per deliquium* twelve pound, Oil Olive three pound, mix them, *Amylum* two pound, Gum Arabick one ounce in powder, glair of Eggs two ounces, put all together, and ſtir continually for four hours time, then let it ſtand the ſpace of a day, and it is done. You may perfume it as before; this makes the Hair fair.

VIII. *Another exceeding the former.*

Take Crown Soap, Vine-aſhes, of each one pound; make it into Cakes with powder of Roch Alum and Tartar, of each alike, which you may perfume at pleaſure.

IX. *To get the Juice or Milk of Macaleb.*

Take the ſweet and odoriferous grains of *Macaleb*, which beat in a mortar (with Roſe-water, or ſome perfuming water) till it becomes like pap, then preſs out the Juice or Milk; which uſe within two or three days leſt it ſpoil.

C H A P. XXI.

*Of burning and boiling Perfumes.*I. **T**O make Perfumed Lights.

Take Olibanum two ounces; Camphire one ounce: beat them into powder; of which make, with Wax, balls or rous, which put into a glaſs Lamp with Roſe-water, and lighted with a Candle, will give a fair light, and a very good ſcent.

II. *Another for a Lamp.*

Take ſweet Oil Olive one pound, Benjamin, *Siorax* in powder one ounce, Muſk, Ambergrife, of each one ſcruple, mix all with the Oil, which put in a Lamp to burn: and the Oil will yield a fragrant odour.

III. *To make perfumed Candles.*

Take *Labdanum*, Myrrh, Xylo-aloes, *Syrax Calamita*, of each one ounce and a half: Willow Charcole one ounce, Ambergrife, Muſk, of each ten grains; make them into Paſte with Mucilage of Gum *Tragacanth* in Roſe-

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Rose-water, which form into roule like Candles, and dry for use.

IV. *A Perfume to smoak and burn.*

Take *Labdanum* two ounces, *Storax* one ounce, Benjamin, Cloves, Mace, of each half an ounce; Musk, Civet, of each ten grains, all in fine powder; make up into Cakes with Mucilage of Gum *Tragacanth* in Rose-water; which dry, and keep among your Cloths; which when occasion requires, you may burn in a chafing-dish of coals.

V. *Another smoaking Perfume to burn.*

Take *Labdanum* two drams, *Storax* one dram, Benjamin, Frankincense, white Amber, Xylo-aloes, of each two scruples, Ambergrise, Musk, of each five grains, make all into Cakes as aforesaid.

VI. *Another very excellent.*

Take *Storax*, Benjamin, of each one ounce; Wood of Alocs half an ounce, Ambergrise, Musk, Civet, Balsam of Peru, Oil of *Rhodium*, of each two scruples; Ivory burnt black a sufficient quantity; powder what is to be powdered, and mix all together; which make into a Paste, with the Ivory black and the Mucilage aforesaid; make little Cakes and dry them, which keep in glasses close stoppt for use.

VII. *Another very good, but of less cost.*

Take *Olibanum* one pound, *Syrax Calamita* and *Liquida*, of each eight ounces; *Labdanum* six ounces, Willow Charcole a sufficient quantity; with Mucilage of *Tragacanth* make a Paste as aforesaid.

VIII. *A sweet Perfume to burn.*

Take *Storax Calamita*, Benjamin, of each an ounce; *Labdanum* six drams; Musk five grains: put them into a mortar heat so hot, that by beating with a little Pestle, they may work together like Wax, which make into little Cakes or Balls, and keep them for use.

IX. *A burning Perfume for a Chamber.*

Take Benjamin, Mastich, of each an ounce: *Storax Calamita*, Gum *Anise*, Amber, of each half an ounce: Time, Sweet Marjoram, *Lignum Aloes*, yellow Sanders, of each two drams: all being in powder, with Gum *Tragacanth* dissolved in Rose-water, make a Mass for Cakes or Balls.

X. *Another*

X. *Another for the same.*

Dissolve Gum *Tragacanth* in Damask Rose-water, and make it into a Paste with *Labdanum*, *Syrax Calamita*, Benjamin, Amber, of each two drams : *Lignum Aloes*, *Lignum Rhodium*, of each two ounces : all being in powder ; mix, and make Cakes.

XI. *Another for the like intention.*

Take Benjamin, *Syrax Calamita*, Amber, all in powder, of each half an ounce ; *Lignum Aloes*, yellow Sanders, of each six drams in powder : make them into Paste with Gum *Tragacanth* dissolved in Rose-water ; which form into Cakes, and dry them for use.

XII. *A Perfume called Amber Paste.*

Take *Syrax Calamita* two ounces : Florentine Orrice, Amber, ana an ounce and half : Nutmegs an ounce : Musk a scruple : being in powder, make a Paste with Gum *Tragacanth* dissolved in Rose-water.

XIII. *A boiling Perfume.*

Fill a Silver or Earthen pan with Damask Rose-water, adding Cloves well bruised half an ounce : Bay-leaves two drams : put them over the fire, and as it wastes, fill up with fresh Rose-water.

XIV. *King Henry his Perfume.*

Take Damask Rose-water a pint ; Cloves bruised, yellow of Limons, of each half an ounce ; Musk ten grains : boil all in a perfuming pan, with two drams of white Sugar.

XV. *King Edward his Perfume.*

Take Damask Rose-water a pint : Ambergrise a scruple, Civet ten grains ; mix in a perfuming pan, setting it over soft Embers.

XVI. *The French Queens Perfume.*

First burn chips of Cypress in the Chamber a pretty while, the Doors and Windows being shut. Then take Damask Rose-water a pint : white Sugar Candy an ounce : put them into a perfuming pan, and let them boil softly on Embers.

XVII. *Cassolets, or perfumed Cakes to burn.*

Take Benjamin in fine powder sixteen ounces : *Storax liquida* eight ounces : Gum *Gnajaci*, Mastick, each in fine powder six ounces : *Labdanum*, *Calamus Aromaticus*, yellow Sanders, Xylo-aloes, Sassafras, all in fine powder, of each three ounces : Cloves, Nutmegs in powder, of each one

Chap.

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Tragacanth

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Chap. 22. *Of Animal Perfumes.*

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one ounce : mix all together, and with Mucilage of Gum *Tragacanth* beat all into a Mass, which form into little Cakes, and dry them for use.

XVIII. *Other Pastiles, or perfumed Cakes to burn.*

Take Benjamin in fine powder, *Storax Calamita* and *Liquida*, of each a pound : Frankincense, Rosin, Mastich, Olibanum, *Gum Anime*, *Gum Lac*, of each eight ounces : yellow Sanders, Xylo-aloes, Winters Cinnamon, of each six ounces : Musk one ounce : all being in fine powder, mix, and with Mucilage of Gum *Tragacanth* a sufficient quantity : make a Mass, which form into Cakes and dry.

XIX. *Another burning Perfume.*

Take Gum of *Peru* and *Tolu*, of each a pound : Benjamin in powder four pounds : yellow Sanders in powder, enough to make it into a Paste.

C H A P. XXII.

Of Animal and Mineral Perfumes.

I. *THE Animal Perfume of Paracelsus.*

Take Cow-dung in the Month of *May* or *June*, and distil it in *Balneo* ; and the water thereof will be an excellent Perfume, and have the scent of Ambergrise.

II. *Lard Muskified, a great Perfume.*

Take Hogs Lard very pure one dram, Musk, Civet, of each half a dram, mix them well for Boxes.

III. *The Mineral Perfume of Antimony.*

Dissolve Antimony in Oil of Flints, Crystal or Sand : coagulate the solution into a red mass, put thereon Spirit of Urine, and digest till the Spirit is tinged ; pour it off, and put on more, till the Tincture is extracted ; put all the Tinctures together, and evaporate the Spirit of Urine in *Balneo* ; and there will remain a blood-red liquor at bottom ; upon which put Spirit of Wine, and you shall extract a very pure Tincture smelling like Garlick : digest it a Month, and it will smell like Balm ; digest it a while longer, and it will smell like Musk, or Ambergrise.

Besides

Besides being a Perfume, it is an excellent sudorifick, and cures the Plague, Fevers, *Lues Venerea*, &c.

IV. *After the same manner you may make as Substantial a Perfume of Sulphur or Brimstone. The making of the Oil of Flints, we have taught at the seven and fiftieth Section of the nine and twentieth Chapter of the third Book.*

C H A P. XXIII.

Of the Adulteration of Musk, Civet and Amber-grise.

B*R* reason that these choice Perfumes are often adulterated or counterfeited, we shall do our endeavour to discover the Cheat, lest any being deceived thereby should suffer loss.

I. *Musk is often adulterated by mixing Nutmegs, Mace, Cinnamon, Cloves, Spicknard, of each alike in a fine or impalpable powder, with warm blood of Pidgeons, and then dried in the Sun, then beaten again, and moistened with Musk-water, drying and repeating the same work eight or ten times; adding at last a quarter part of pure Musk by moistning and mixing with Musk-water; then dividing the Mass into several parts, and rolling them into the hair of a Goat, which grows under his tail.*

II. *Others adulterate it thus: By filling the Musk-cods with Goats blood, and a little toasted Bread, mixed with a quarter part of Musk well beaten together. The cheat is discerned by the brightness of the Goats blood.*

III. *Or thus, Take Storax, Labdanum, powder of Xyloloes, of each four ounces; Musk and Civet, of each half an ounce, mix all together with Damask Rose-water. The cheat is discerned by its easie dissolving in water, and its different colour and scent.*

IV. *Or thus, Take Goats blood, powder of Angelica roots, Musk, of each alike, make a mixture.*

V. *To adulterate Civet: Mix with it the Gall of an Ox, and Storax liquefied and washed; or you may adulterate it by the addition of Honey of Crete.*

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Chap. 23. Of Adulterating Musk, &c. 427

VI. To restore the lost Scent to Musk, or Ambergrise.

This is done, by hanging it sometime in a Jakes or House of Office : for by these ill scents its innate vertue and odour is excited and revived.

VII. Another way to adulterate Civet.

Take pure Pulp of Raisins of the Sun eight ounces : Musk in fine powder one ounce : mix them well together, and add Civet eighteen ounces : mix again, and digest in a Bolt head in a Sand heat for twenty days ; then being cold, take it forth, stir and mix it well together, and keep it in a Jar glass close covered with Bladders.

VIII. Another way to do the same.

Take liquid Storax, Honey, Ox Gall, fine pulp of Figs, of each two ounces and half : Musk in fine powder one ounce : choice Civet twenty ounces : mix them well in a Mortar, put them into a Bolt head, and digest twenty days, aforesaid, &c.

IX. To Adulterate Ambergrise.

Take Beni Nuts three ounces, beat them in a perfect Pulp ; to which add Sperma Ceti three ounces ; beat them also well together : then add Benjamin in fine powder, Florentine Orrice in fine powder, white Starch, of each seven ounces : Bitumen in fine powder one ounce : Musk in fine powder half an ounce : Ambergrise in fine powder six ounces : mix them all together, and with Mucilage of Gum Tragacanth make a Mass or Paste, which work well together with your hands.

X. Another adulteration of Ambergrise.

Take of the former composition ten ounces, Ambergrise in fine powder twelve ounces : Spirit of Damask Roses a sufficient quantity : beat them together in a Mortar till they are well mixt ; and keep the Mass to make Perfumes with.

C H A P. XXIV.

*Of Perfuming Cloth, Skins, Gloves, &c.***I.** *TO Perfume Skins or Gloves.*

Put a little Civet thereon here and there, (if Gloves, along the seams) then wash in Rose or Musk water four or five times, or so long as that they favour no more of the Leather, pressing them hard every time; then lay them in a platter, covered with the said water, mixed with pouders of Cypress a day or two; take them out, press them, and dry them in the shadow: being half dry, besmear them a little with Civet mixt with Oil of Jasemin or Ben, on the inward side chafing them with your hands before a fire, till you think that the Civet hath pierced or gone through the Leather; leaving them so a day or more; then rub with a Cloth, that the Gloves or Leather may grow soft; leaving them so till they are almost dry, being drawn and stretched out; then hold them over some burning Perfume to dry, and wetting them again with Musk-water, do thus twenty times: lastly, take Musk and Ambergrise a sufficient quantity, which mix with Oil of Jasemin, Benjamin or Ben, dissolve at the fire with a little perfumed water, with which (with a Pencil) strike the Gloves or Leather over on the outside; besmearing the seams with Civet; lastly lay them for six or eight days between two Matresses, so will the Skins or Gloves be excellently perfumed.

II. *Another way very excellent.*

Take three pints of Wine, Sheeps Suet or Fat one pound, boil them together in a Vessel close covered, this done, wash the Grease six or seven times well with fair water, then boil it again in White Wine and Rose-water, of each one pound and a half, with a small fire, till the half be consumed: then take the said grease, to which put pulp of sweet Navews, roasted, half a pound; boil all in Rose-water half an hour; then strain it, and beat it in a Mortar, with a little Oil of Jasemin and Musk,

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with which besmear your Gloves (after due washing, as aforesaid) rubbing it well in by the fire.

III. *Another way for Gloves.*

Wash new Corduban Gloves, wash them well three or four days (once a day) in good Muskified White-Wine, pressing and smoothing them well; lastly, wash them in musked water, letting them lye therein for a day, then dry them with care. This done, steep *Musk*, *Amber*, *Basil*, of each one dram in a quart of sweet water, in which dissolve Gum *Tragacanth* three drams, boil all gently together, and in the boiling add Civet one scruple, with which besmear the Gloves, rubbing and chafing it in, then drying them according to Art.

IV. *Or thus*: First wash the Gloves or Skins in White-Wine, then dry them in the shade; then wash them in sweet water, mixed with Oil of Cloves and *Labdanum*, of each alike: lastly, take Musk, Civet, Ambergrise, of each the quantity of six grains, Oil of Musk half a dram, mucilage of Gum *Tragacanth* fifteen grains: mix them well together in a Mortar, which chafe into the wash'd Gloves before the fire.

V. *Or thus*. Take Damask Rose-water muskified, *q. s.* put it into a Pewter or Earthen dish, and lay the Gloves in it one night and day, with a little turning now and then, and that they may be thoroughly wet; then take them out, and dry them carefully: Take Cloves an ounce and half, in fine powder; mix it with the same water, and lay it upon the Gloves, wetting them thoroughly, and dry them as before: Take Oil of Ben, or of Almonds an ounce; Musk half a dram; Ambergrise a scruple: grind all well together upon a stone, with a few drops of the former water, with which anoint the seams, and chafe it into the Leather, laying many pairs one upon another for some time, till they are thoroughly soaked, and then keep them carefully from the Air.

VI. *Or thus*. Take Oil of sweet Almonds, or of Ben, which is better, two ounces: Musk two drams: Ambergrise half a dram: Oil of Cloves Chymical, a dram and half: Grind all well together upon a Porphyre (the Musk and Amber being first in fine powder;) then digest two Months, and keep it for use: Take Damask Rose-water muskified, and wet your Gloves therewith very well upon a board, then dry them; do this three or four times,

times, and at last anoint them with the former, with this Oyl, you may anoint your hands, it will not only perfume them, but also make them soft and smooth.

VII. *Or thus.* Take Oyl of Cloves two ounces : *Syrax Calamita*, one ounce : Benjamin half an ounce, Cinnamon three drams : Musk half a dram : Ambergrise a scruple : sweet Marjoram, Time, of each fifteen grains : mix and grind them on a Porphyre, to be used as the former Oyl, after washing of the Gloves in Damask Rose-water.

VIII. *Or thus.* Take Musk two drams : Ambergrise one dram : Civet twelve grains ; mix them together well : then add Gum *Tragacanth* dissolved in Damask Rose-water muskified : grind all upon a stone till they are very fine, and fully mixed ; then lay it upon your Gloves with a Brush, being first washt in this following water. Take Lye of wood-ashes a pint and half : the yellow of a dozen Oranges : Brasil and yellow Sanders in powder, of each an ounces ; Alum a small quantity : boil to the Consumption of a third part ; strain, and with a clean cloth or brush wash over your Gloves (being first washt in rain water from their Alum and Eggs) to colour them, four times ; then being dry, apply to them the former Oyl.

IX. *Or thus.* Take Musk a dram : Ambergrise half a dram, Civet six grains, grind them on a stone with Oyl of Limons, or with equal parts of Oyl of Limons, Saffras and Rhodium ; with which your Gloves (being washt as in the former Section) are to be perfumed by anointing them with a small brush.

X. *Cloths, Linnen, or Woollen, Coffers, Trunks, and the like,* are best perfumed (with little cost) with the smoke of burning Perfumes, after which you may sprinkle them often with Damask Rose-water muskified, and anoint the Corners and Closures of the boards with some of the former Oyls.

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POLYGRAPHICES

LIBER SEXTUS

The Art of Dying and Staining.

CHAP. I.

Of Dying Ash Colours.

I. *To dye an Ash-Colour.*

Take Water a sufficient quantity : Nut Galls bruised small eight ounces : Madder two ounces : put all into the Vessel, and let them boil : then enter twenty yards of Broad Cloth, and handle it, letting it boil two hours : then cool it, and put in Copperas two ounces, and enter your Cloth again, and handle it ; and let it boil a quarter of an hour longer, and cool it. If you would have it sadder, you must put in more Copperas. *Note, That Handling of it, signifies to Roul it on the Rouler, as it is boiling, and to let it all in again, to hinder its Spotting, and to make it take colour equally. And Cooling it, signifies to take it up and Air it.*

II. *Another Ash-Colour.*

Take Nut-galls bruised six ounces : red Tartar bruised four ounces : let them boil well one hour and half in the Liquor ; then enter twenty yards of Broad Cloth, and handle it well, and cool it : after which put in

two ounces of Copperas, and sadden it with Copperas as you please.

III. *To dye the best Ash-Colour.*

Take fair Water a sufficient quantity : red Tartar four ounces ; Nut Galls three ounces ; bruise them small, and enter your twenty yards of Cloth, and boil an hour and half : then cool, and sadden as you think fit.

IV. *Another way to dye an Ash-Colour.*

Take Water a sufficient quantity, which put into the Copper ; to which put Nut Galls bruised small six ounces : let the Copper boil, and enter your Cloth, and boil an hour and half, and so cool your Cloth : Then put in of red Tartar four ounces, which dissolve : put in your Cloth again, and boil half an hour ; and so take it forth, cool and air it : Lastly, put in Copperas half an ounce, and let it melt ; enter your Cloth again, and sadden it as you please. This will Dye three pounds weight.

V. *Another Ash-Colour.*

Take Water a sufficient quantity ; Galls bruised small six ounces ; put all into a Cauldron, and let them boil : then enter your Cloth the space of an hour and half : then put in of red Tartar five ounces, (the Cloth being first taken out) which dissolve, and put in the Cloth again, and let it boil half an hour. Take the Cloth out again, and put in Copperas, White Vitriol, of each half an ounce, dissolve, enter your Cloth again, and it will be a good Colour, for to Dye three or four pounds weight.

VI. *Another kind of Ash-Colour.*

Take Water a sufficient quantity, and add to it Nut-Galls beaten small four ounces : Cochenele half an ounce ; boil them together, and enter your Cloth, and boil an hour and half, and so cool your Cloth : then put in Copperas four ounces, and enter the Cloth, and sadden : this will dye twelve pounds of Yarn or Cloth.

C H A P. II.

Of Dying Blacks.

I. *To Dye a Black Colour.*

Take Water *q. s.* Alder-bark, or Alder-tops six handfuls, more or less, made small; put them into your Copper, and boil them an hour with a very good fire: then take them forth, and put in Nut-galls bruised small two pounds: Sumach one pound: Logwood four ounces; and let them boil: then enter your twenty yards of Cloth, and handle it; and boil four hours: take it out and cool it: then put in of Copperas one pound; being melted, enter your Cloth again, and handle it: boil it an hour, and cool it again: put in Chamber-lye eight quarts, enter your Cloth again, boil it half an hour, then cool, and wash it well.

II. *To Dye a Black upon a Blue.*

Take Water *q. s.* or thirty six quarts; Nut-galls beaten small nine ounces: Wooll, Woollen Yarn, or Woollen Cloth or Flannel, the weight of three pounds: boil them for four hours: after which take the Matter forth and air it: then add to the Liquor green Copperas eighteen ounces; and if there is not Liquor enough, put in more Water, so much as to cover the Cloth, &c. and let it boil two hours, handling it always. Then take it out and Air it; put it in again, and Air it; and put it in again, till it is black enough: After which cool and wash it. *Note*, if you put in some Sumach with the Galls, it will make a better Black.

III. *Another Black Dye.*

Take fair Water *q. s.* Nut-galls bruised small a pound, Sumach half a pound; Alder-bark, Oak-bark, of each four ounces: make them boil, and when it begins to boil, put in a little cold water, that it may break the boiling; stir all together, and put in your Cloth, letting it boil three hours; after which take it out, and put in more fresh water, and make it boil, adding to it Copperas one pound: being dissolved, put in your Cloth, and boil it two hours: then take it out again, and put

in more Copperas *q. s.* and Log-wood ground half a pound : make it boil, and put in your Cloth again, and let it boil an hour. This will Dye five yards of Broad Cloth, or ten yards of Cloth, three quarters wide.

IV. *Another Black Dye.*

Take Water *q. s.* Log-wood ground, Sumach, of each a pound : Nut-galls bruised small two pounds : boil them together for an hour, and so enter your Wool, Cloth, Flannel, Yarn, &c. boil again an hour, and take it out, cool and air it : then put in Copperas three pounds, let it melt, and put in the Wooll, Cloth, &c. again, and boil near an hour, take it out and wash it. This will Dye twenty pounds weight of any of the former things.

V. *Another to Dye twenty Yards of Broad Cloth, &c.*

Take Water *q. s.* Sumach five handfuls ; Logwood ground two handfuls, Alder-bark bruised small two handfuls, boil them all together ; then put in your Cloth, and boil three hours : take it out, cool and Air it, and make it Black, with a sufficient quantity of Copperas.

VI. *Another Black Colour for twenty Yards of Broad Cloth.*

Take Water *q. s.* Nut-galls bruised small two pounds, Alder-bark a pound and half, Madder one pound, Sumach half a pound ; mix all together in the Caldron ; when it boils, put in the Cloth, and let it boil three hours, after which take it out, and let it cool : then put in Copperas half a pound, and when it boils put in your Cloth again, and boil an hour ; and handle it, and boil an hour, and take it out and cool it : after which put in more Copperas, and some Urine, then put in your Cloth again, and boil till it is Black enough.

VII. *Another Black Colour.*

Take Water *q. s.* Nut-galls bruised small a pound ; Logwood ground, Sumach, of each half a pound : Alder-bark four ounces ; boil, and enter your Cloth ; then cool and Air it, and with Copperas, a pound and half, darken the colour, as you desire it. This is enough for fourteen pounds of Wool, Yarn, Flannel or Cloth.

VIII. *To make a firm Black Dye.*

First Wadd it with the Blue (in Chap. 3. Sect. 8. following) then take Water thirty quarts ; Galls bruised small one pound ; Vitriol three pounds : first boil the Galls

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Galls and Water with the Stuff or Cloth two hours: then put in the Copperas at a cooler heat for one hour: after which take out the Cloth or Stuff, and cool it, and put it in, boiling it for another hour: lastly, take it out again, cool it, and put it in once more.

IX. *To recover the colour of Black Cloth, when decayed.*

Take Fig-tree leaves, boil them well in Water, wash your Cloth in it, dry it in the Sun, and it will be a much fairer Black.

X. *To make Lamp-black better.*

Make a Fire-shovel red hot, and lay the Color upon it, and when it has done smoaking, it is enough. It may be used with Gum-water, and ought not to be ground when used with Oil.

XI. *A finer Lamp-black than what is usually sold.*

It is made with Lamps of Oil, laying something close over to receive the Smoak.

XII. *A Black from Sheeps-feet.*

Take Sheeps-feet bones *q. s.* calcine them in an Oven, or in a Crucible in a Furnace, and quench them in a wet Cloth: you must grind them in Water before you add any Gum. This Black will mix with Lake and Umber for Carnation in Miniature or Water Painting.

XIII. *To Dye Martins Skins, with long Hair, of a very good Black, which never fades.*

Take Water *q. s.* new Nut-galls two pounds, Beef Marrow two ounces: boil them in an Earthen Pot close covered, often stirring it, lest the Galls burn, and boil till it makes no noise when you stir it, then beat it, and strain out: Take of this liquor two pounds: Copperas twelve ounces; Roch Alum twelve ounces: Litharge eight ounces: Verdigrise, Sumach, Sal Armoniack, of each four ounces: each being beaten by it self, mix, and boil them together, and keep the Liquor to Dye with. *Note,* Before you apply the Liquor, you must wash the Skins two or three times in very pure clear Lime water; and when you apply the Dye, you must do it with a Pencil against the grain of the Hair, and afterwards the other way also. These skins, when dry, differ little or nothing from Sables. The Verdigrise some leave out, but it does no hurt to the Liquor.

C H A P. III.

Of Dying Blues.

I. **T**O Dye a Blue or Sky Colour.

Take Urine *q. s.* Indico four ounces, beat it small, and dissolve it in the Urine in a gentle heat, close covered: then try its strength with a little piece of Wool or Flannel: if it does not dye well, let it stand longer, until its colour is good. It will be greenish at first, and afterwards it will turn Blue: put in a Pint of Yest into your Liquor before you put in your Wool, Yarn, Flannel, &c. and it will make it Dye the better: the less Indico you put into the Liquor, the better Sky-colour it will be, provided it be not too little.

II. *An excellent Blue Colour.*

Take stale Urine *q. s.* Rock Indico, in small powder, four ounces: let them stand and soak in a good heat till the Indico is dissolved, add to it a pint of slacked Lime, and a pint of new Yest: mix well together, and let all stand a quarter of an hour very hot; then stir it: And enter twenty yards of Broad Cloth, and handle it over and over, for the space of half an hour: then cover it up for twelve hours, and then take it forth and wash it. If it is not deep enough, heat the Fat, and put it in again.

III. *Another Blue Colour.*

Take boiling Water *q. s.* put into it Pot-Ashes: Indico a pound; Madder two ounces; Wheat Bran four pints: mix all together, and cover it the space of twelve hours: then open it, and put in one pint of Woad, stir it about very well, and cover it up for an hour; after which open and stir it about, scum it, and then put in your Wool, Yarn, Flannel or Cloth. This will Dye about forty pound weight.

IV. *To Dye another Blue Colour.*

Take Urine *q. s.* make it very hot; put into it Indico in fine powder four ounces; Madder half as much as of Indico: ground Malt as much as of the Madder, and a little Yest; Pot-Ashes two ounces; cover it up, and let it

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it stand in the warmth of the Fire, and try when it colours well ; then wet your Cloth in warm Water, and keep the Fat warm, and work your Cloth in it, till it is a good Blue ; observing to stir it often that it may not spot : keep it thus working till you think the Dye is deep enough.

V. *To Dye another Blue Colour.*

Take *Ebulus* or Dwarf Elder-berries ripe and well dried ; steep them in Vinegar twelve hours, then with your hands rub them, and strain them through a linnen Cloth, putting thereto some bruised Verdeter and Alum. Where note, That if you would have the Blue to be clear, you must put the more Verdeter to it.

VI. *Another excellent Blue Dye.*

Take Tincture of Brasil *q. s.* Vinegar three ounces : Copper scales one ounce : Salt one dram : mix all in a Copper Vessel, in which put the Matter to be Dyed.

VII. *Another singular Blue Dye.*

Take calcin'd Tartar three pugils, unslaked Lime one pugil ; water *q. s.* make a *Lixivium*, and filter it : to twelve or fifteen quarts of this *Lixivium*, put *Flanders* Blue one pound, and mix them well. Set it to the Fire, till you can scarcely endure your hand in it, then first boil, (what you would Dye) in Alum Water, then take it out, and dry it ; afterwards dip it in hot Lye twice or thrice, and put it into the Dye again.

VIII. *To make a substantial Blue Dye.*

Take Water a Gallon, more or less ; Woad one pound ; infuse in a scalding, or almost a boiling heat for twenty four hours : then put into it Wool, Cotton, Stuffs, Flannels, or Cloth of a White colour.

IX. *Another good Blue.*

Take Urine *q. s.* heat it in the Caldron, and dissolve therein *Indico* eight ounces ; then put it into the Fat, and add Madder one ounce, and a little ground Mault ; let it stand a while ; then enter twenty yards of Cloth, working it till it is deep enough.

X. *Another fair Blue.*

Take *Sal Armoniack*, Quick-lime, of each a pound : Verdeter two or three ounces ; put all into a Vial ; and set it in a Horse Dung-hill for fourty Days.

XI. *Another fair Blue Colour.*

Take Turnsole, infuse it all Night in Urine ; the Day fol-

following grind and mix it with a little Quick-lime, according as you intend the colour : if you would have it a little shining, add to it a little Gum Arabick.

XII. *To Dye Barley Straw, &c. of a Blue Colour.*

Take a *Lixivium* of Pot-Ashes *q. s.* *Litmos*, or Log-wood ground, a pound : make a Decoction ; then put in your Straw, and boil, and it will be Blue.

CHAP. IV.

Of Dying Browns.

I. *To Dye a good Brown Colour.*

Take Water *q. s.* put it into your Copper or Cauldron, and put thereto Redwood ground, Nut-galls bruised small, of each twenty ounces : boil them together, and enter your Cloth (twenty yards of Broad Cloth) and let it boil two hours and a half, cooling it always with a Cooler, for fear of spotting, after which, take it up and Air it : then put in Copperas sixteen ounces ; and enter your Cloth again when it is near boiling, and handle it, letting it boil half an hour, and so cool it. If you would have it sadder, put in more Copperas.

II. *To Dye a Sad Brown.*

First infuse the matter to be Dyed in a strong Tincture of *Hermadaets*, then in a bag put Saffron and Alhes, *stratum super stratum*, upon which put Water two parts, mixed with Vinegar one part : strain out the Water and Vinegar, being thoroughly hot, fifteen or sixteen times : in this Lixivate Tincture of Saffron put your former matter to be Dyed, letting it lye a Night, then take it out, and without wringing hang it up to dry : this work repeat the second and third times.

III. *To Dye a Brown Tawney, or Iron Rust Colour.*

Make a strong Decoction of Walnut-tree leaves in fair Water : then put in the Matter you would Dye, and boil it some hours with the Leaves in the said Liquor : and when it comes out, it will be exactly of the colour you desire.

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IV. *To make the Colour called a London Brown.*

First make your Cloth (twenty yards of Broad Cloth) of a bright Blue : then take stale clear Liquor made of Wheat Bran *q. s.* Logwood ground four ounces : Alum two pounds and half : mix and boil your Cloth two hours and half, and so cool : after which take fresh Liquors made of Wheat Bran and clear, to which put Madder two pounds and half, and handle it, with a quick fire, to a boiling, then cool : after which take clear water *q. s.* Logwood ground eight ounces : Brasil ground four ounces, let them boil well, adding some Urine ; then enter your Cloth, and handle it, and let it boil a quarter of an hour, cool, and wash it well.

V. *Another Brown Colour.*

Take Water as much as may cover twenty eight pounds of Wool, Yarn, Flannel, or Cloth, put it into a Cauldron or Copper, to which put Nut-galls bruised small two pounds : Redwood ground eight ounces, and put in the matter to be Dyed : boil all together three hours, and take the Cloth out, and Air it : then put into the same Liquor Copperas four pounds, melt it, and enter your Cloth again, and boil it, to deepen the colour as you please.

VI. *Another London Brown.*

Take Water *q. s.* Nut-galls bruised small sixteen ounces, Redwood ground, Madder, Fustick, of each eight ounces ; boil all together an hour ; then put in your Cloth, &c. and let it boil an hour also ; after which take it out, and let it cool : then put in Copperas two pounds, and when melted, put in your Cloth again, and sadden it : this will Dye twenty pounds weight.

VII. *Another kind of Brown.*

Take Water *q. s.* and put into it Nut-galls bruised small one pound : Redwood ground two pounds and half : boil two hours : enter twenty yards of Broad Cloth, and sadden as you please.

VIII. *Another London Brown.*

Take Water *q. s.* Redwood ground twenty four ounces : enter twenty yards of Broad Cloth : boil all together one hour ; take it forth, and cool it ; and put into the Liquor Wood-foot *q. s.* and let the Copper boil till the Soot is dissolved ; then put in your Cloth, and boil an hour ; take out the Cloth and cool it : put in Copperas

peras *q. s.* put in your Cloth again, and fadden as is usual.

IX. *Another Brown Colour.*

Take water *q. s.* Madder two pounds : Nut-galls bruised small twenty four ounces : Fustick twelve ounces : put all into the Cauldron together, and let them boil ; then enter fifty pounds weight of Wool, Yarn, Flannel, or Cloth, and boil two hours and half : then cool it, and put in Copperas two pounds, and boil to a just sadness.

X. *To Dye Barley-straw, &c. Brown.*

Take of *Lixivium q. s.* Indian wood ground, green shells of Walnuts, ana eight ounces : steep the Straw four or five days in a gentle heat, and then take them out.

XI. *To Dye or Stain Wood of a Walnut-tree Brown.*

Take the green shells of Walnuts, dry them in the Sun, then boil them in Oil of Nuts ; and with this Oil rub your Wood.

CHAP. V.

Of Dying a Cinnamon Colour.

I. **T**O Dye a Cinnamon Colour.

Take Water *q. s.* crust Madder a pound and half : Nut-galls a pound ; Fustick a pound ; Redwood two ounces ; boil all in your Cauldron : after enter your twenty yards of Cloth, and handle it, boiling it strongly for two hours ; cool it, and put into the Liquor, Copperas four ounces, enter your Cloth again, boil and handle it ; boil a quarter of an hour and cool ; and put in Copperas two ounces more : enter your Cloth again, and handle it, and let it boil a quarter of an hour, then cool, and it will be a good Cinnamon colour : the less Copperas the lighter it will be ; the more Copperas the deeper.

II. *Another Cinnamon Colour.*

Take Water *q. s.* dry rotten Oak half a Bushel, Madder two pounds ; boil them well, and enter twenty yards

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Chap. 5. Of Dying Cinnamon Colours: 441

yards of Cloth ; which handle well, and boil three hours, still handling it : take it out of the Cauldron and Air it ; and if need be add a little more water to the Dye, and put in Copperas twenty four ounces : enter your Cloth again, take it out and cool it ; and if it is not sad enough put it in again with more Copperas.

III. Another Cinnamon Colour.

Take Water *q. s.* Nut-galls bruised small four pounds ; Fustick, Red-wood ground, of each a pound ; boil them all together : then enter your Cloth, and handle it well, for fear of spotting, and boil it two hours, and cool it : then put in to sadden it Copperas two pounds. This will Dye 48 or 50 pounds of Wool, Yarn, Flannel, Bays, Cloth, &c.

IV. Another Cinnamon Colour.

Take Water *q. s.* Madder two pounds : Redwood ground a pound ; boil them together for an hour : then enter 40 pounds of Wool, Yarn, Cloth, &c. and boil again an hour : take it up and Air it, and put in Copperas three pounds ; which when melted, put in the Cloth again, and make it boil, &c.

V. Another Cinnamon Colour.

Take Water *q. s.* crust Madder three pounds ; Nut-galls bruised small, Fustick, Redwood ground, of each a pound : rotten Oak-wood, Tanners-bark, of each half a pound : boil all together : then enter twenty yards of Cloth, and boil an hour and half, after which cool, and sadden with Copperas eight ounces ; and if that deepens it not enough put in more.

VI. Another Cinnamon Colour.

Take Water *q. s.* Nut-galls, Madder, of each a pound : Fustick twenty four ounces ; Redwood ground six ounces : boil, and enter twenty yards of Broad Cloth, cool, and sadden with Copperas four ounces, &c.

C H A P. VI.

Of Dying Clove Colours.

I. **T**O Dye an excellent Clove Colour.

Take Water *q. s.* Fustick twenty four ounces: crust Madder, Nut-galls, of each a pound: Red-wood ground four ounces; boil and enter twenty yards of Broad Cloth: boil two hours with a strong heat, handling it: then put in Copperas half a pound, Oak shavings four ounces: enter your Cloth again, handle it well; boil half an hour, and so cool it: if you would have the colour sadder, put in more Copperas.

II. *Another Clove Colour.*

Take Water *q. s.* Joyners Oak-shavings four pounds: Madder two pounds: Red-wood, Walnut-tree Leaves, of each four ounces; boil them well: and enter twenty yards of Cloth, which handle well and boil three hours, still handling it: take it out, and Air it; adding if need requires a little more water: then take Copperas thirty ounces; enter your Cloth again, take it out and cool it; and sadden it (if need requires) with more Copperas.

III. *Another Clove Colour.*

Take Water *q. s.* Nut-galls, Red-wood ground, of each a pound: Fustick, Madder, of each eight ounces: Sumach four ounces: boil all these together for an hour; then enter your Cloth, &c. and boil an hour; take it out, and put in Copperas two pounds; being melted, put in your Cloth again, and let it boil: This will Dye twenty pounds weight of Wool, Yarn, Cloth, &c.

IV. *Another Clove Colour.*

Take Water *q. s.* Sumach six handfuls; Fustick three handfuls: Red-wood ground one handful, boil all these two hours and half with twenty yards of Broad Cloth, then cool, and sadden with Copperas as you see fit.

V. *Another Clove Colour.*

Take Water *q. s.* Nut-galls two pounds: Madder two pounds: Fustick a pound and half: boil all together; cool with a little Water, and then enter 48 or 50 pounds of

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Chap. 7. Of Dying Flesh Colours.

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of Wool, Yarn, Cloth, &c. handle your Cloth, and boil two hours and half, then cool, and sadden with Copperas two pounds four ounces.

VI. A Liver Colour.

Take Water *q. s.* Nut-galls bruised small, Red-wood ground, of each one pound; Sumach eight ounces: Madder four ounces: Fustick two ounces: boil all together, and enter twenty yards of Broad Cloth: boil half an hour and cool; adding more Copperas if you would have it sadder.

CHAP. VII.

Of Dying Flesh Colours.

I. TO Dye an Incarnate or Flesh-colour in Grain.

Take stale Liquor made with fair Water and Wheat Bran, or sowre Tap-wort, being very clear *q. s.* Alum bruised two pounds and half: red Tartar bruised small one pound: boil all together, and enter twenty yards of Broad Stuff: boil and handle it well for three hours, after which cool your Cloth and wash it well: then take fresh Bran Liquor, (made of a Peck of Bran) the clear Liquor *q. s.* Grains of Chermes four ounces, dryed upon a Pewter Dish before the fire, and made into a fine powder: red Argol in powder four ounces: mix these three things together, and make them boil; enter your Cloth, and handle it, boiling it three quarters of an hour strongly, and keeping the Cloth under the Liquor; then cool and wash it well.

II. Another Incarnate Colour in Grain.

Take small Beer *q. s.* Alum twenty ounces: red Tartar eight ounces: melt or dissolve, and enter twenty yards of Stuff, Cloth, &c. and boil it two hours and a half, then cool it, and let it lye in the Water twenty four hours: after which wash it well. Take fair Water, small Beer, of each equal parts *q. s.* Grains in fine powder an ounce; infuse them all night, putting in also a little Wheat Flower, about an ounce, then make it ready to boil, and enter the Cloth.

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III. *Another Incarnate or Flesh Colour.*

First boil your Cloth very well in a good Alum water, take it out, hang it up dropping, and let it dry. Take clear Bran liquor *q. s.* Cochenele in fine powder one ounce, Tartar half an ounce; mix, and make almost a boiling heat, letting it take as little Air as may be, then enter your Cloth, and handle it as quick over as may be, for about half an hour; after which take it out, wash it well in cold water, and hang it up to dry.

IV. *Another Incarnate or Flesh-colour, called a Raspberry red.*

Take Water, or rather Bran Liquor *q. s.* Alum three pounds; boil for three hours; then add Madder four pounds, Brasil ground four ounces, Alum one ounce, fresh Bran Liquor *q. s.* boil; and then enter twenty yards of Chamlet stuff, but not boiling; keep it in two hours, take it out and wash it well.

C H A P. VIII.

*Of Dying Grey, Russet, or Lead Colour.*I. *Silver Grey Colour.*

Take Water *q. s.* Nut-galls bruised small two ounces: Tartar bruised three ounces; boil them: enter twenty yards of Stuff, Cloth, &c. handle it, and boil an hour and half, and cool it: then put in Copperas an ounce; enter your Cloth again at a boiling heat, handle it, and boil a quarter of an hour, and so cool. If you would have it sadder, put in more Copperas.

II. *To Dye a Light-grey Colour.*

Take Water *q. s.* Nut-galls bruised small four ounces: white Tartar bruised small four ounces; make them boil: then enter twenty yards of Broad Cloth, and handle it, boiling an hour and half: cool your Cloth, and put in Copperas an ounce and half; enter your Cloth again, and handle it; boil a quarter of an hour, and cool it: if you would have it sadder, add more Copperas.

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III. *To Dye a Lead Colour.*

Take Water *q. s.* Nut-galls bruised small one pound, Madder half a pound : make them boil ; enter twenty yards of Broad cloth, boil an hour, take it out and cool it : then add to the Liquor Copperas four ounces ; boil, and put in your cloth again, and handle it a quarter of an hour ; after which take it forth and wash it.

IV. *To Dye another Lead Colour.*

Take Water *q. s.* Nut-galls bruised small a pound : Red-wood ground two ounces : boil all together ; enter twenty yards of Broad cloth, and handle it, and boil an hour and half : take up your cloth and cool it : after which put in Copperas eight ounces ; enter your Cloth again, at a boiling heat, and handle it, and let it boil half an hour, and cool it : if you would have it sadder, use more Copperas. *Note*, That quantity which Dyes twenty yards of Broad cloth will dye forty yards of Stuff.

V. *To make a fair Russet Colour.*

Take Water *q. s.* Brasil ground one ounce : boil it an hour : Grains in powder half an ounce ; boil and enter your Wool, Yarn, Cloth, &c. boil an hour, cool, and add Copperas four ounces : enter your Matter again, boil, cool, &c.

VI. *Another Russet Colour.*

Take Water *q. s.* Brasil in powder, Red-wood, of each half a pound : Nut-galls two ounces ; Copperas four ounces : mix, boil an hour, enter the Matter you would Dye, and let it lye twenty four hours.

C H A P. IX.

Of Dying Greens.

I. *To Dye an Olive Green.*

Take clear Bran liquors, but stale *q. s.* Alum three pounds ; Logwood ground one pound, boil and enter twenty yards of Broad cloth, boil two hours and half ; cool and wash it well. Take clear water *q. s.* Nedder (commonly called Linge) Heath Strawel, or

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Fustick, so much as may make twenty yards of Broad cloth Green. Then take clear water *q. s.* Fustick a pound, Crust Madder, Nut-galls, Sumach, of each four ounces; boil, and enter your cloth, and handle it well: boil it an hour and half, and so cool: add Copperas four ounces, and enter your cloth again, boil half an hour; if you would have it sadder, put in more Copperas.

II. *To Dye a Poppingjay Green.*

Take Water *q. s.* Alum two pounds: Logwood ground eight ounces: boil and enter twenty yards of Broad cloth; boil three hours, and make it a bright yellow: then draw it through a cold Fat, and then wash it.

III. *To Dye a good Sea-green.*

First make it a sad Blue, then take Water *q. s.* Alum two pounds: Logwood four ounces: boil and enter your cloth, boil three hours; then wash it, and make it a bright Yellow: after which draw it through a cold Fat, and then wash it again.

IV. *To Dye a Grass Green.*

First make it a sad Blue: then take Alum two pounds, boil, and enter your cloth, and boil three hours, and wash it; then dip it into a good Yellow Dye.

V. *To Dye a French Green.*

Take clear stale Bran Liquor *q. s.* Alum two pounds and a half, boil; enter twenty yards of sad Blue Broad cloth, boil it two hours and a half, and wash it well. Take fair Water *q. s.* Heath Strawel, or Fustick, a sufficient quantity; boil well, and put in your cloth, and handle it well: then take twenty ounces of Logwood ground, and put into the Dye, also Copperas four ounces (which binds the colour) and if you please, you may new draw the cloth through a Blue Fat, and handle it, so will it be finisht.

VI. *To Dye a Verdigrise Green.*

Take Water *q. s.* make it as hot as you can endure your hand in it; to which put Verdigrise two ounces in fine powder: enter twenty yards of Stuff, and handle it well with your hands: let it lye in the Liquor all Night, stirring it sometimes; and then let it lye till it is deep enough.

VII. *To Dye a Poppingjay Green.*

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Alum three pounds, boil, and enter twenty yards of Broad cloth, and boil three hours ; cool your cloth and wash it well. Take fair water *q. s.* Nedder (called also Linge) or Heath Strawel, a good quantity, boil it well, and take it out ; then enter your cloth, and boil it well, making it a bright yellow : heat your Blue Fat, and put in *Indico* bruised small four ounces : Madder three ounces : ground Malt two quarts ; new Yest a quart : mix these things well together, keep them as hot as you can, and let it stand, till it will strike Blue : then enter your cloth, and handle it well (to avoid spotting) till it is done, and so wash it.

VIII. To Dye another French Green.

First make your cloth a good Blue : and take the same clear Bran Liquor you take for your other Greens *q. s.* Alum three pounds : Logwood ground four ounces : boil well, enter twenty yards of Broad cloth ; boil two hours and half ; after take it out, cool it, and wash it well. Take fair water *q. s.* good Hedder, or Heath Strawell, so so much as to make your cloth a good Green. Take fair water *q. s.* Logwood ground a pound, let them boil, and add a little Urine : enter your cloth, boil a quarter of an hour, and handle it, and so cool it. If you would have it a sad colour, enter it again, cool, and wash it.

IX. To Dye a Forrest Green.

First make your cloth a good Blue. Take clear stale Bran Liquor *q. s.* Alum three pounds : Logwood ground five ounces : let them boil, and enter twenty yards of Broad cloth, handle it, and boil two hours and a half : take it out, cool and wash it well. Take fair water *q. s.* and good Hedder, enough to make your cloth a good Green ; boil it well, then enter your cloth, and boil it a convenient time. Take fair water *q. s.* Logwood ground twenty ounces boil them a quarter of an hour, cool a little, and then enter your cloth and handle it well, letting it boil a quarter of an hour longer, after which cool your cloth, and wash it well.

X. To Dye a Grass Green.

First make your cloth a bright Blue. Then take clear stale Bran Liquor or sowre Tap-wort *q. s.* Alum three pounds ; let them boil, and enter twenty yards of Broad cloth, handle it, and boil it with a strong fire for two hours, cool it, and wash it well. Take fair water *q. s.*

Hedder or Heath-Strawel, what you think fit : boil well for an hour ; take forth the Hedder, and enter your cloth, handle it well, and let it boil a quarter of an hour ; then cool, and put in a little Urine ; enter your cloth again, boil a quarter of an hour, cool, and wash it well. Note, *That the different or various colours of Greens arise from the first Blue being lighter or sadder ; or from the Yellow being a deep or light colour.*

XI. *A very good Green colour.*

Take Sap-green, bruise it, put water to it, then add a little Alum, mix and infuse for two or three days.

XII. *To make a very good Dye.*

First Dye the Cloth or Stuff Yellow, as we direct in Chap. 17. Sect. 6. following, then put it into the Blue Dye described in Chap. 3. Sect. 8. foregoing.

XIII. *To make a dark Green colour.*

First Dye your Wool, Yarn, Stuff or Cloth, of a Blue colour, as we direct in Chap. 3. Sect. 8. foregoing : then put it into the yellow Dye in Chap. 17. Sect. 6. following ; and it will be of a dark Green colour.

XIV. *To Dye a Poppingjay Green colour.*

Make a weak *Lixivium* of Pot-ashes, such as the Country People wash their Clothes with : put into it *Indico*, a sufficient quantity : then put in your things to be Dyed (being first Dyed Yellow) and let it boil, the longer the better ; so will the colour be good.

XV. *A very fair Green for Miniature.*

Grind Verdigrise with Vinegar, and a little Tartar ; and then add a little Quick-lime, and Sap-green : grind all well together, and keep it in shell : if it grows hard, make it soft with Vinegar.

XVI. *To make a very fair Green.*

Take Verdigrise, Tartar, Vinegar, of each *q. s.* boil them all together, and it is done.

XVII. *Another Green for Limning.*

Take Buckthorn-berries gathered the latter end of *August*, when ripe : beat them, and boil them eight or ten hours very gently : then add water to make it thinner, strain through a cloth, as hard as you can, and add to the Liquor Alum in powder *q. s.* some add Vinegar, but then it is longer a drying, and will be ruddy. You must keep it in a bladder in the shade, or Chimney corner, and it will keep well.

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XVIII. To make *Straw Green*.

Boil it in water with *Litmos* or Logwood, and then it will be Blue : and then boil them in a *Lixivium* of Pot-ashes, and Yellow Barbery-bark, and they will be Green.

XIX. To make a *Beautiful liquid Green*.

Take Verdigrise one pound : white Tartar in powder eight ounces : Wine Vinegar a quart : mix all, infuse for one night, and then boil till half is consumed ; and filter whilst hot. When you use it, mix *Gum Ammoniack* and Saffron to stiffen it : it will glaze over Buckthornberry Greens. If you mix it with the Juice of those Berries, and Azure, it will make several sorts of Greens.

XX. To make *Green Balls*.

Take Buckthorn-berries a pound : beat and boil them in ten pints of water till half is consumed : strain all through a cloth, and put into the liquor as much Ceruse in fine powder as will make it into a Paste : which form into little Balls, and dry upon Tiles : when dry, stiffen them with dissolved Gum : they will be the better ; if you mix with them some water of *Gum Ammoniack*.

C H A P. X.

Of Dying Hair Colours.

I. **T**O Dye a Hair Colour.

Take Water *q. s.* Alum three pounds, with which, Alum twenty yards of Broad cloth : and after which make it of a bright Yellow with Fustick. Take Water *q. s.* Nut-galls in powder two pounds : Madder in powder four ounces, let it boil an hour ; then take it forth and cool it, after which put in Copperas eight ounces ; and making it boil, put in your cloth, and handle it well, about a quarter of an hour, then take it forth and cool it. If it is not sad enough, put it in again ; for the oftner you take it out and put it in, the sadder it will be.

II. *Another Hair Colour.*

Take Water *q. s.* Alum three pounds : enter twenty yards of Broad cloth, and boil it three hours : take it out, and wash it well, and make it a bright Yellow. Take Nut-galls eight ounces : Madder four ounces made small ; put them in your Cauldron, and let them boil : enter your cloth and handle it well, and boil one hour : then take it out and cool it : add to the former things Copperas eight ounces ; let it boil, put in your cloth again, handle it ; and repeat this work till it is sad enough.

III. *A Hair or Cloth colour.*

Take Water *q. s.* Crust Madder, Nut-galls, Sumach, Red-wood ground, of each a pound : boil, enter twenty yards of Broad cloth, boil an hour, and sadden with Copperas six ounces.

IV. *Another Hair colour.*

Take Water *q. s.* Fustick one pound : Nut-galls eight ounces : Madder four ounces ; Red-wood two ounces : make them boil : enter twenty yards of Stuff, &c. and boil two hours : cool your cloth, and put in Copperas four ounces : enter your cloth again, handle it, and boil a quarter of an hour, then cool, and put in more Copperas, if you would have it fadder.

V. *Another Hair colour.*

Take Water *q. s.* Fustick eight ounces : Nut-galls bruised small six ounces, Red-wood ground four ounces ; make them boil ; then enter your cloth, &c. and boil two hours and half : afterwards cool and sadden with Copperas eight ounces. This will serve for twelve pounds of Wool, Yarn, Cloth, &c.

C H A P. XI.

*Of Dying Mouse Colours.*I. **T**O make a light Mouse, Lead, or Beaver Grey colour.

Wet your Stuff, Cloth, &c. well in water, then take Water *q. s.* Nut-galls beaten small two pounds ; boil a little, enter your cloth, and stir it well up : put
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Chap. II. Of Dying Mouse Colours: 451

in Red-wood ground *q. s.* according as you would have its lightness or sadness; making it sadder with more Galls, and a gentle heat: if you would have it sadder yet, then put in a little Wood-Soot, but then it will become a Brown: boil, and then cool, and lastly sadden with Copperas.

II. To make a Mouse, or light Moss colour.

Take Water *q. s.* Fustick a pound and half: Sumach one pound: Nut-galls eight ounces: crust Madder four ounces: let them boil, and then enter your cloth (twenty yards of Broad cloth) and boil two hours, and handle it well; after which cool, and add Copperas one pound, enter your cloth again, handle it, and boil half an hour; then cool: put in Urine *q. s.* enter your cloth again, boil a quarter of an hour, and sadden as you please.

III. To Dye a Mouse colour out of a White.

Take Water *q. s.* Fustick three pounds; Nut-galls one pound: boil, enter twenty yards of Broad cloth, boil two hours; handle it well and cool: afterwards add Copperas a pound; enter your cloth again, boil almost an hour, and let it boil well in the saddening, and so take it out, and cool it: add then more Copperas, and put in your cloth again, till you think it sad enough; if you would have it a bright Mouse colour, put in some crust Madder. But if you would have it a Green Mouse, put no Madder in, but cool it often, so will it sadden the better.

IV. To Dye a Mouse colour blued.

Take Water *q. s.* Alum two pounds and half: enter twenty yards of Broad cloth, boil two hours, and take it forth, and cool it, washing it well. Take fair Water *q. s.* Heath or Fustick, a sufficient quantity; enter your cloth, and make it Yellow, as you do your Greens: then take Nut-galls in small powder half a pound, and put them into the said Liquor, enter your cloth, and let it boil an hour; take it out and cool it; after add Copperas half a pound; make it boil, and enter your cloth again: boil an hour, cool it; and add more Copperas, as you would have it in sadness; cool often, and it will sadden the better, and the less Copperas will serve.

V. Another Mouse colour.

Take Water *q. s.* Nut-galls beaten small a pound:
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Madder a pound : Fustick two ounces : boil an hour ; enter twenty yards of Camlet, boil again an hour ; take it out and cool ; add Copperas three ounces, and sadden, &c.

VI. *Another Mouse, or light Tree-Moss colour.*

Take Water *q. s.* Fustick a pound and half, Sumach a pound : Nut-galls half a pound : crust Madder four ounces : boil them, and enter twenty yards of Broad cloth : boil two hours and cool : then put in Copperas a pound : enter your Cloth again, and boil an hour, and cool : add Urine *q. s.* enter your cloth again, and boil till it is sad enough : the sadder you would have it, the more Copperas put in.

C H A P. XII.

Of Dying Pink Colours.

I. **T**O *Dye a Pink Colour in Grain.*

Take clear stale Wheat-bran liquor *q. s.* Alum two pounds and a half : Red Tartar one pound, melt them, and enter twenty yards of Stuff, or fine Flannel ; boil three hours, and cool, and wash. Take fresh clear Liquor of Wheat-bran, Red Tartar, Grains, both in fine powder, and of each three ounces : mix, boil, and enter your cloth, handle it well, and boil three quarters of an hour, cool, and wash your cloth well.

II. *Another Pink Colour.*

Take Wheat-bran liquor *q. s.* Alum eight ounces ; boil and Alum your cloth two hours : after which take it out, and wash it clean, casting away that Liquor. Take fair-water *q. s.* Cochinele in powder one ounce : Grains of Chermes half an ounce : *Aqua fortis* ij. drams : make them luke-warm, and put in your cloth, and let it stay in, till it is ready to boil ; then take it out : This will colour seven pounds weight.

III. *To Dye a Pink colour in Grain.*

Take Wheat-bran Liquor *q. s.* Alum six ounces, dissolved in small Beer, mix, boil, and enter your cloth, boil an hour, take it out, and cool it : add White Tartar

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in powder two ounces ; Cochinele in fine powder half an ounce ; enter your Cloth, Stuff, &c. and boil an hour and half : it will dye three yards of broad Flannel ; the more you wash it, the brighter it will be ; but let it not hang in the shadow whilst it is wet.

IV. *An Observation worthy of Note.*

It is to be Noted, That Pink Colours, and all Colours Dyed in Grain, are not to be Dyed in Iron or Copper Vessels, but in Pewter, or rather Tin Vessels, because these attract or draw forth the Colour, and fix it, making it unchangeable : Nor are you to use Iron Waters, or Waters springing from Iron, or Vitriolick Mines, &c.

C H A P. XIII.

Of Dying a Rose Colour.

I. *TO Dye a Rose-Colour.*

Take Liquor *q. s.* Alum two pounds, Madder eight ounces : let them boil ; then put in forty eight or fifty pounds of Wool, Yarn, Stuff, Cloth, &c. and boil two hours ; after which take it out and wash it clean. Take fair water, *q. s.* Brasil ground two pounds, mix : when it begins to boil, put in your Wool, Yarn Stuff, Cloth, &c. and boil till it is well coloured.

II. *Another Rose-Colour.*

Take the same Liquor which you use for Reds, *q. s.* being very clear, Alum three pounds : enter twenty yards of Broad Cloth, boil three hours, cool and wash well. Then take fresh clear Wheat-bran Liquor, Madder two pounds and a half : enter your Cloth at a good heat ; handle it to a boiling heat, and cool, and wash well : then add Brasil ground one pound and a half ; let it boil half an hour, after which put in some stale Urine ; enter your Cloth again, boil half an hour, cool, and wash it well,

III. *Another Rose-Colour.*

Take Liquor *q. s.* Alum two pounds, Madder twelve ounces : enter fifty pounds of Wool, Yarn, or Cloth ; boil two hours, cool, and wash well. Then take fresh clear

clear Liquor *q. s.* Brasil ground three pounds ; boil half an hour : enter your Wool, Yarn, Cloth, &c. and putting in Urine *q. s.* boil half an hour more, cool, and wash it, &c.

IV. *An Observation.*

It is to be noted, That fresh clear Liquor, is that which is newly made with Wheat Bran, and Fair Water ; the Bran being afterwards strained forth ; and this is that Liquor which all the Ingredients are intended to be boiled in.

C H A P. XIV.

Of Dying Red-Rose, or Carnation Colours.

I. **T**O Dye a Red-Rose, Blood-Red, or Carnation Colour.

Take Liquor of Wheat Bran, *q. s.* Alum three pounds, Tartar two ounces : boil, enter twenty yards of Broad Cloth, boil three hours, cool, and wash it. Take fresh clear Bran Liquor *q. s.* Madder four pounds, boil, and sadden according to Art.

II. *Another Red-Rose, or Carnation Colour.*

Take Wheat Bran Liquor, *q. s.* Alum two pounds, Tartar two ounces ; boil and enter twenty yards of Camlet, and boil three hours ; after which take it out and wash it very well : then add Madder a pound, enter and boil it again, cool and wash it : after which, take clear Liquor *q. s.* Cochinele in fine powder two ounces, Tartar two ounces, enter your Camlet, boil and finish.

III. *To Dye Crimson in Grain.*

First boil the Yarn, Stuff, &c. in the Red (in chap. 15. sect. 8. following) then finish it in a strong Tincture of Cochinele, made in part water part wine, or in Wheat Bran Liquor : Where note, That the Vessels in which the Materials are to be boiled, must be lined with Tin, otherwise the Colour will be defective. The same observe in dying of Silks (in each colour) with this caution, that you give them a much milder heat, and a longer time.

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IV. *Another Carnation Colour.*

Take Running water four Gallons, Pot Ashes two pounds: mix and digest 48 hours: this done, divide the Liquor, half into one pot, and half into another pot: let the first pot stand in the hot Embers, up to the top, or in a Furnace; and the other by a fire, to keep warm, and to fill up the first as it boils away. Into the first put Red *Brisca*, or *Spanish* Flocks, or Woel, two pounds, letting it boil till it is thick; adding Alum, and a little Gum Arabick, of each the quantity of a Walnut: diminish the heat, and let it be only scalding hot; then put in the matter you would Dye, letting it lye 24 hours in the Liquor.

V. *An excellent Observation.*

The *Bow Dyers* know that the solution of *Jupiter*, (which is dissolved Tin) being put into a Kettle, to the Alum and Tartar, makes the Cloth, &c. attract the colour into it, so that none of the Cochenele is left, but is all drawn out of the Water into the Cloth.

VI. *Another Observation.*

The *Spirit of Nitre* being used with *Alum* and *Tarter*, in the first boiling, makes a firm Ground, so that they shall not spot nor lose their color by the Sun, Fire, Air, Vinegar, Wine, Urine, or Salt water, &c.

C H A P. XV.

Of Dying Red Colours.

I. **T**O Dye the best Red Colour.

Take clear stale Wheat Bran Liquor, or sowre Tap-wort *q. s.* Alum bruised three pounds, put all into your Copper, enter your twenty yards of Broad Cloth, and handle it; boil three hours, cool, and wash it well: Take fresh Wheat Bran Liquor *q. s.* Madder five pounds; enter your Cloth at a good heat, handle it to a boiling heat, cool it, and wash it well. Take fresh Wheat Bran Liquor *q. s.* let it boil, and put in Urine a Gallon; enter your Cloth, boil half an hour, cool it, and wash it, and it is done.

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half, Tartar two ounces : enter twenty yards of Broad Cloth, and boil three hours, and take it out. Take fresh Bran Liquor *q. s.* Madder four pounds : boil, handle, and finish it.

VII. *Another Red Dye.*

Take stale Wheat Bran Liquor, six days old, or sowre Tap-wort *q. s.* Alum three pounds : enter twenty yards of Broad Cloth, boil three hours, cool and wash. Take fresh and clear Bran Liquor *q. s.* Madder four pounds, steeped in the same Liquor : enter your Cloth at a good heat, and handle it to a boiling ; take it out, cool, and wash it well.

VIII. *A good Red Dye.*

Take Rain-water, *q. s.* Brasil in powder, fine Vermilion, of each an ounce : Alum one dram : boil them till half is consumed.

IX. *Another excellent good Red Dye.*

Take *Lixivium* of unslak'd Lime five Gallons, Brasil ground two pounds and a half ; boil to the half : then put to it Alum twenty ounces : keep it warm, but not to boil : Then what you would Dye in this Liquor, dip first into a Lye made of Ashes of Tartar, letting it dry, then dip it into the Dye.

X. *Another very good Red Colour, or Dye.*

What you would Dye, first boil in Alum Water ; then dip it into the following Liquor. Take Water *q. s.* Roset one pound, Gum Arabick a little, boil a quarter of an hour, and then strain it for use.

XI. *To make a pure clear Red Dye.*

Take Wheat Bran Liquor thirty quarts, or *q. s.* Brasil in powder four pounds : Alum in powder two pounds : Tartar one pound : mix, and dissolve, and make a Tincture : enter your Stuff, or Cloth : boil for two hours : take it out, and boil it again in fresh Bran Liquor thirty quarts (adding madder three pounds) and perfect the Color with a moderate heat without boiling.

XII. *Another good Red Dye.*

Boil the things you would Dye first in Alum Water, then take them out, and boil them in Water, with Brazil in fine powder : let it boil till the scum arises, then put in the things to be Dyed, and let them boil till the Water looks of an Orange Tawny ; casting in then also a handful of Bay Salt.

Note, Urine is not much used now, and some do not wash the Cloth out of the Alum.

II. Another Red Dye.

Take clear fair water *q. s.* Alum three pounds : boil and enter twenty yards of Broad Cloth : boil it two hours and half, take it out and Rang it, and hang it up a little while to let the water drop from it. Take clear Bran Liquor *q. s.* Madder four pounds (steeped first an hour in Small Beer) bring it almost to a scalding heat, and enter your Cloth, and handle it swiftly for the space of half an hour ; take your Cloth out, and put it into Urine, after which wash it well, and it is done.

III. Another very good Red Dye.

Take Water *q. s.* and three ounces of Alum to every pound of Wool, Yarn, or Cloth ; boil the Wool, but put it not in till the Alum is-melted : boil three hours, take it out, and wash it well in cold water, and cast away the Liquor. Take fresh clear Bran Liquor, or Small Beer unboiled, add to it five ounces of Madder to every pound of Wool, Yarn, Cloth, &c. put in the Madder when the Liquor begins to be warm, break the Madder well with your hands, when in the Liquor ; and when it is near boiling, enter your Cloth, &c. and handle it well, boiling it half an hour, or till it is well coloured : then put in three quarts of Urine, give two or three boils, and so take out your Cloth, &c.

IV. Another Red Colour.

Take Liquor *q. s.* Alum three pounds : Tartar one pound, boil and enter twenty pounds of VVool, Yarn, or Cloth ; boil two hours, take it out, wash it clean, cast away the Liquor, and put in clear fair water, and Madder four pounds : when it boils, enter your Cloth, &c. again, and handle it, till it is enough.

V. Another Red Colour or Dye.

Take Water thirty quarts, Alum two pounds and a half : and therein boil thirty pounds of Wool, Yarn, or Cloth, and take it out. Take fair VVater ten Gallons, Madder five shillings worth, let it stand twelve hours, boil and enter your Wool, Yarn, Cloth, &c. boil quickly, and then take it out, and put it into strong Urine for one hour, then take it out and wash it.

VI. Another Red Colour, or Dye.

Take fowre Bran Liquor *q. s.* Alum two pounds and a half,

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XIII. *To colour Barley Straw, &c. Red.*

Boil ground Brasil in a *Lixivium* of Pot-ashes, and in that boil your Straw.

XIV. *A Red Pigment which shall not grow Black.*

Take pure fine Vermillion, grind it with Water of *Gum Ammoniacum*, with the addition of a little Saffron.

XV. *To Dye a good Red.*

Take stale clear Wheat Bran Liquor *q. s.* Alum three pounds : enter twenty yards of Broad Cloth, handle it, and boil three hours : take it out, cool it, and wash it well. Take fresh Bran Liquor *q. s.* Madder six pounds : enter your Cloth at a boiling heat, and handle it, till it is as deep as you would have it ; and if you please finish it with Brasil.

XVI. *To make Red Paper.*

Take Bastard Saffron, or Safflower, eight ounces : put it into a Linnen Bag, and wash it by a River side, till it scarcely gives any colour : then put the remainder into a Bason, sprinkling it with the powder of Glas-wort, (or rather with *Soda*) one ounce ; so put it into a little Pail of Blood-warm Water, always stirring it ; after which strain it, and add a little Juice of Limons, to make it give a Red Color. The Paper ought to be fine, and dipt into the Bason.

C H A P. XVI.

*Of Dying a Red Blush Color.*I. *To Dye a Red Blush-Color.*

Take stale clear Wheat Bran Liquor six days old, *q. s.* Alum three pounds and a half : Red Tartar half a pound : melt them, and enter twenty yards of Broad Cloth ; handle, and let it boil three hours ; take it out, and wash it well (but some wash it not.) Take fresh Liquor *q. s.* of the best Madder three pounds, enter your Cloth, and handle to a boiling heat ; cool, and wash again. Lastly, take fresh clear Bran Water, *q. s.* let it boil, enter your Cloth, and let it boil a quarter of an hour : cool, and wash it well again.

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II. *A Red Blush-Colour in Grain.*

Take stale fowre clear Bran Liquor *q. s.* Alum three pounds and a half : Red Tartar half a pound : enter twenty yards of Broad Cloth, boil three hours, cool, and wash. Take fresh clear Bran Liquor *q. s.* best Madder three pounds : enter and boil again. Take fresh Bran Liquor *q. s.* Grains in fine powder four ounces : Red Tartar three ounces : enter your Cloth, and boil an hour or more, keeping your Cloth well under the Liquor : then cool and wash.

III. *Another Blush Color in Grain.*

Take clear stale or fowre Wheat Bran Liquor, *q. s.* Alum three pounds and a half : Red Tartar eight ounces : melt them, and enter twenty yards of Broad Cloth, boil three hours, handle it well, take it out, cool and wash. Take fresh Bran Liquor, *q. s.* enter your Cloth, and handle it, letting it boil a quarter of an hour, cool, and wash. Take more fresh Bran Liquor, *q. s.* make it boil, and add thereto Grains in powder two ounces : Red Tartar an ounce and half ; let them boil, enter your Cloth, handle it, and let it boil three quarters of an hour, then cool, and wash it well.

IV. *To make a Spanish Carnation Colour.*

Take Bastard Saffron, or Safflower, wash it well, dry it, and beat it ; and to a pound of it, being beaten, add Calcin'd Tartar four ounces : grind all together, and put it into a double course Linnen Bag ; and affuse upon it a quarter of a pint of Limon Juice blood warm ; put this into a sufficient quantity of fair water, and then put in the things you would Dye. But the Stuff, or Cloth you would Dye, is first to be boiled in Alum water.

C H A P. XVII.

Of Dying Scarlet, and the Bow-Dye.

I. *TO Dye a Scarlet Color in Grain.*

Take stale clear Wheat Bran Liquor *q. s.* Alum three pounds : enter your twenty yards of Broad Cloth, and

and boil three hours, cool and wash it : Take fair water *q. s.* Nedder or Strawel a fit quantity, let them boil well, cool with a little water, enter your Cloth, and make a bright yellow ; cool and wash it again. Take fresh Wheat Bran Liquor *q. s.* Madder four pounds : enter your Cloth at a good heat, handle it to a boiling, cool and wash it well. Take more fresh Bran Liquor *q. s.* Cochenele in fine powder five ounces : Tartar three ounces : enter your Cloth, and boil an hour or more, keeping it under the Liquor, then cool and wash.

II. *To Dye a Bastard Scarlet color.*

Take stale Bran Liquor twelve days old, *q. s.* Alum three pounds and a half ; Red Tartar one pound : dissolve, enter twenty yards of Broad Cloth, boil four hours, and handle it well, cool it, and let it lye in the Alum water twenty four hours, and wash it in fair water (but some do not.) Take fresh Bran Liquor *q. s.* best Madder one pound : enter your Cloth at a good heat, handle it well to a boiling, keeping but a slow fire : cool and wash well. Lastly, take fresh Bran Liquor *q. s.* enter your Cloth again, boil half an hour, cool it, and wash it well.

III. *Another Scarlet Colour in Grain, from a White Colour.*

Take fair water, clear Bran Liquor, of each equal parts, *q. s.* Alum nine pounds and a half : Tartar five pounds and a half ; melt them : then enter thirty pounds weight of Wool, Yarn, Flannel or Cloth : boil four hours, take it out, and let it cool, and wash it well in fair cold water. Then take Grains (commonly called Cochenele) fifteen ounces, in fine powder : Tartar fifteen ounces : fresh Bran Liquor *q. s.* mix them, enter your Cloth, &c. handle it to a good heat, and your Cloth being White, it will be of a good Scarlet Colour ; let it boil two hours, handle it well, take it out, and wash it.

IV. *To perform the Bow Dye.*

Take double *Aqua fortis* ten ounces, (some say sixteen ounces) Filings of Pewter twenty ounces : Filings of Silver, or leaf Silver two ounces : put in the Pewter into the *Aqua fortis* to dissolve, and after that the Silver, dissolving over a gentle heat : Then take Cochenele in fine powder ; Cream of Tarter in fine powder five ounces ;

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Chap. 18. *Of Dying Sand Colours.* 461

mix them with the former things, and add to them White Starch forty Spoonfuls, dissolving and mixing. Now take the Liquor you intend to Dye with, and put in a proportional quantity of the former mixture, (but in a Brass Vessel lined with Pewter or Tin) boil a quarter of an hour, and it is done, &c. See Chap. 14. Sect. 5. foregoing.

C H A P. XVIII.

of Dying Sand Colours.

I. *To Dye a Sand Colour.*

Take water *q. s.* Nut-galls in powder one pound, Madder six ounces, Fustick four ounces: let them boil, and enter your Cloth (twenty yards of Broad Cloth) let it boil two hours, and handle it, and so cool it: add Copperas four ounces; enter your Cloth at a boiling heat, let it boil a quarter of an hour, and handle it, and so cool it again. If you will have it sadder, put in more Copperas, enter your Cloth again, and boil another quarter of an hour, cool and wash.

II. *Another Sand Colour.*

Take water *q. s.* Red-wood ground two pounds and a half, Sumach one pound: enter your Cloth, boil two hours, and cool. Add Copperas two pounds, enter your Cloth again, and sadden as you think fit, &c.

III. *Another Sand Colour.*

Take water *q. s.* Nut-galls a pound in powder, boil them a little: then add Red-wood ground *q. s. viz.* according as you would have the Sand Colour, Light or Dark: enter your Cloth, boil an hour, and handle it: if you would have it Darker, add a little Wood-foot: enter your Cloth, and boil pretty well, and cool; after sadden as you please with Copperas.

IV. *Another Sand Colour.*

Take water *q. s.* Nut-galls in powder one pound: Madder six ounces: Fustick four ounces: Red-wood ground three ounces: Brasil ground two ounces: boil, enter twenty yards of Broad Cloth, boil two hours, and

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cool : add Copperas three ounces : enter your Cloth again at a boiling heat, handle it, and boil a quarter of an hour, and so cool. If you would have it fadder, you must put in more Copperas.

CHAP. XIX.

Of Dying Snuff Colours.

I. *TO Dye a Snuff or Chesnut Colour.*

Take water *q.s.* Nut-galls in powder one pound, Madder four ounces and a half, Red-wood ground one pound, Fustick four ounces : make them boil, and enter twenty yards of Broad Cloth ; handle it, and boil two hours, and cool : add Copperas four ounces, enter the Cloth, and handle it, and boil it a quarter of an hour, and cool it : if you would have it fadder, use the more Copperas.

II. *Another Snuff Colour.*

Take clear stale Bran Liquor, *q.s.* Alum three pounds : enter twenty yards of Broad Cloth, boil three hours, cool and wash it. Take fair water *q.s.* Nedder or Strawell a sufficient quantity, boil well, cool with a little water, enter your Cloth, and make a bright yellow, cool and wash again. Take fresh Bran Liquor *q.s.* Madder four pounds, Galls eight ounces : enter your Cloth at a good heat, handle it to a boiling, cool and wash it. Take new fresh Liquor *q.s.* Copperas, Sumach, of each half a pound, enter your Cloth, and boil for an hour, cool and wash.

III. *Another Snuff Colour.*

Take water *q.s.* Fustick two pounds : Nut-galls in powder one pound : Madder, Red-wood ground, of each half a pound : mix, and let them boil : enter your twenty yards of Broad Cloth, and boil two hours and a half, take out your Cloth and cool it : add Copperas four ounces, let it boil, enter your Cloth, and fadden as you see fit.

IV. *An Observation.*

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Chap. 20. *Of Dying Violet, &c. Colours.* 463

less Copperas : if you would have it to look Greenish, you must use the more Fustick : but if you would have it look the more Red, use the more Red-wood.

V. *Another Snuff Colour.*

Take water *q. s.* Logwood ground one pound : Fustick, Sumach, of each two ounces : mix, and make the Lead boil strongly, enter your Cloth, and boil a quarter of an hour, and so cool : add Copperas eight ounces, and so fadden as you see occasion.

VI. *Another Snuff Colour.*

Take Water *q. s.* Red-wood ground two pounds : Brasil ground one pound : Sumach one pound, Nut-galls bruised small two ounces : boil, enter your Cloth, boil two hours : then add Copperas a pound and half, enter your Cloth again, and fadden as you see fit.

VII. *Another Snuff Colour.*

Take Water *q. s.* Fustick two pounds, Madder one pound, Red-wood ground half a pound : let them boil and then enter twenty yards of Broad Cloth, handle it, and let it boil two hours, and cool it : add Copperas four ounces, which is enough for the lighter Color ; then enter your Cloth, handle it, boil half an hour, and then take it out and cool it.

C H A P. XX.

Of Dying Violet and Purple Colours.

I. **T**O make a Purple Colour, or Dye.

Take Water *q. s.* Alum twenty ounces : Madder five ounces : boil, enter twenty yards of Stuff, and boil two hours and half, take it out, and wash it well. Wash the Lead, and then put in clean Water *q. s.* Logwood ground two pounds, boil it a while, and enter your Cloth, handle it well, and take it out, and cool it : enter it again, and put it in and out, till the Colour is strong enough.

II. *To make a Violet Colour in Grain, out of a sad Blue.*

Take fair Water, clear Bran Liquor, of each equal parts, *q. s.* Alum nine pounds and a half : Tartar five pounds

pounds and a half; melt them, and enter thirty pounds weight of Wool, Yarn, Stuff, Cloth, &c. of a sad Blue color; boil four hours, cool, and wash it in cold water. Then take fresh Bran Liquor *q. s.* Cochenele, Tartar, both in fine powder, of each fifteen ounces: mix, enter your Cloth, handle it to a good heat, boil two hours, handle it well, take it out, and wash it, and it will be of a pure Violet or Purple color.

III. *Another Purple Color, without Bluing.*

Take clear stale Wheat Bran Liquor, or sowre Tapwort *q. s.* Alum three pounds: enter twenty yards of Broad Cloth, boil three hours, cool, and wash well. Take fresh Bran Liquor, *q. s.* Madder twenty ounces; enter your Cloth, boil with a quick fire, cool, and wash. Take clear, or fair water, *q. s.* Logwood ground twenty four ounces, boil half an hour, and put in some Urine, then enter your Cloth, handle it, and boil half an hour, take it out and cool it: add Nut-galls bruised two ounces, and enter your Cloth again, handle it, and boil half an hour, cool and wash it.

IV. *Another Violet or Purple Color.*

Take clear stale Bran Liquor *q. s.* Alum three pounds: enter twenty yards of Broad Cloth, and boil two hours and half; cool and wash well. Take fresh Liquor *q. s.* Madder twenty ounces: enter your Cloth, and boil with a quick fire, cool, and wash well. Take fair Water *q. s.* Logwood ground eight ounces: Brasil ground two ounces: let them boil a quarter of an hour, enter your Cloth at a boiling heat, handle it, and boil a quarter of an hour, take it out, and cool it: add Urine *q. s.* enter your Cloth again, boil a quarter of an hour, then cool and wash it well.

V. *A good Violet or Purple Color.*

Take Water four gallons: Myrtle berries eight pounds; Alum one ounce; calcin'd Brasse one ounce: mix them in a Brasse Kettle or Vessel, boil half an hour, and strain it.

VI. *To make another pleasant Violet or Purple Dye.*

First Dye it Blue by Chap. 3. Sect. 8. of this Book: then boil it in the former Red at Chap. 15. Sect. 11. aforesgoing; lastly, finish it with a Decoction of Brasil.

VII. *Another Purple Color.*

Take Orchal, mix it with half Urine, and let it boil till it is of a Dark color : then put in the Matter you would Dye, letting it lye 24 hours or more.

VIII. *An Excellent Violet Color.*

Take calcin'd Tartar, Turnsole, of each a pound, beat them, and tye them up in a Linen Cloth, and steep them 24 hours in Water ; and then put in the Matter which you would have to be of a Violet Color.

C H A P. XXI.

Of Dying Tellows, and Orange Tawny.

I. *To Dye a Yellow Colour.*

Take Water *q. s.* Alum one pound : enter your Yarn, Cloth, &c. boil two hours, and take it out, and wash it clean. Take fresh fair Water *q. s.* Fustick two pounds ; let it boil, and enter your Cloth, boil it an hour, and take it out : this will Dye twenty pounds weight.

II. *To Dye an Orange Tawney.*

Let your Wool, Yarn, Flannel, Stuff, or Cloth, &c. be first Dyed into a Red color : and then being Red, let it be dyed into a Yellow color.

III. *Another way to Dye an Orange Tawney.*

Take stale Wheat Bran Liquor *q. s.* Alum three pounds : enter twenty yards of Broad Cloth, handle and boil three hours : take it out, cool, and wash it well. Take fair Water, and good Linge or Hedder, which grows in Morasses, Moors, or Swamps ; boil it a good while, and take forth the Hedder, and cool with a little cold Water ; then enter your Cloth, and make it a good Yellow ; take it up and Air it. Take fresh Bran Liquor *q. s.* Madder two pounds, enter your Cloth, and boil it with a quick fire : then take it out, cool it, and wash it well. Observe, you may make it a good Yellow with Fustick, and then afterwards perfect it with Madder.

IV. *To make another Yellow Color.*

Take Buckthorn-berries gathered about the beginning of August, bruise them, and add a little Alum in fine powder; mix, and keep all in a Brass Vessel.

V. *Another good Yellow.*

Make a strong Tincture of Saffron in White Wine Vinegar, and add thereto a sufficient quantity of Alum in powder.

VI. *To make another excellent Yellow Dye.*

Take pure clear Wheat Bran Liquor thirty quarts: Alum three pounds: enter your Stuff or Cloth, boil for two hours: after which take Wold, Weld, or Dyers Weed two pounds, and boil it till you see the colour good.

VII. *Another good Yellow Dye or Color.*

Take Running Water, and Malt-wort, of each a like quantity; in which dissolve a sufficient quantity of Alum, by boiling. Into this Liquor put whatsoever you would have Dyed Yellow, and let it boil a good while: then take it out, and put it into a strong decoction of Wold, Weld, or Dyers Weed, made with Chalk Water, and (laying weight upon it) let it boil an hour or two.

VIII. *To Dye an Orange-Tawney Color.*

Make a weak Lixivium of Pot-Ashes, or such Buck-Ashes, as Women wash their Cloths withal: put into it Wood-Soot, a sufficient quantity; and black Cork: boil a while, then put in the Matter you would Dye, (being first Dyed Yellow) and let it boil a little, casting in whilst it boils, a handful of Bay Salt.

IX. *To Dye Barley Straw, &c. of a Yellow Color.*

Take a Lixivium of Pot-Ashes q. s. Yellow Bark of the Barbery Tree a pound: make a decoction, and in this boil your Straw, &c.

X. *To Dye a Yellow color.*

Take Alum Water q. s. inner Bark of a Plum Tree, a pound; or as much Sumach; make a Decoction, and boil what you think fit in it, and it will be of a fair Yellow.

XI. *To make a Yellow.*

Take Orpiment q. s. grind it with Water, then put it in little parcels upon Paper to dry, and then you may use it as a pigment.

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XII. To make an Orange Color.

Take Vermillion, grind it with a little Saffron, and then mix with it a little Red Lead.

C H A P. XXII.

Of Watering Stuffs, and taking out Spots.

I. HOW to water Stuffs, &c.

Take Water, *q. s.* Gum Tragacanth one ounce : mix and dissolve, and make a thin clear Water : then take ten yards of Stuff, and wet it with the said Water all over, and put it into a Press : let it lye a pretty while, and turn it twice : after which, you must scrue the Press very hard, and so let it stand until it be cold.

II. An Observation.

The Gum-water ought to be pure thin and clear, otherwise the folds of the Stuff will stick together : it is also to be done very hot, else it will not penetrate ; and the Stuff, &c. is to be thoroughly wet therewith, yet not too wet.

III. To take out Spots.

Wash them with Oil of Tartar *per deliquium*, two or three times, and they will vanish ; then wash with Soap-suds, and lastly with fair warm Water.

IV. To take out Ink Spots.

Wash them three or four times with Juice of Limons, or with strong White-Wine Vinegar, and it will do ; after wash them with Genoa Soap, and lastly with fair warm Water.

V. To take out Spots of Turpentine, or Pitch.

First rub them well with Hogs-Lard, or old thick Oil, and repeat this two or three times ; then Soap them, and wash with warm Water. Spirit of Wine is also good in this case.

VI. To take out Spots of Grease.

Rub them very well two or three times with Oil of Turpentine, and they will vanish away to a wonder : lastly wash again with Rectified Spirit of Wine.

VII. *To take out Spots of Oil or Grease, out of White or Red Silk.*

Take *Aqua Vita*, and rub the Spots well with it : then take Glair of new-laid Eggs, and rub the Spots well therewith, and let it dry in the Sun ; after which wash it with clean water, and press it well.

VIII. *A Powder to take out Spots.*

Take Bone-Ashes of Sheeps Legs calcin'd White, make them into subtil powder ; which lay warm upon the Spot or Stain, till it begins to change color ; then remove it, and lay on more, and continue it till the Spot is gone.

IX. *Another for the same.*

Take White or Wheaten Bread just drawn out of the Oven : lay one piece of it above, and another underneath the Silk, and it will draw out the Oil or Grease.

X. *Another for the same.*

Take Honey and mix with it Glair of Eggs, and *Sal Armoniack*, and lay them on the Spot for some time, and wash it with fair Water.

XI. *To take Spots of Ink out of Silk.*

Take strong White Wine Vinegar, hot Ashes, rub them well upon the Spots, and wash afterwards with Soap and Water, and the work will be done.

XII. *To take Spots of Pitch, Tar, Turpentine, &c. out of Cloths.*

Take common Oil, or Hogs Lard, rub it well upon and into the Spots, letting it lye for 24 or 48 hours, then rub it well with your hands, and wring it, after which wash it clean with Soap and water.

XIII. *To take out Stains.*

Take Soap a pound : Fullers Earth eight ounces : unslaked Lime two ounces : mix all in fair water, and after a while lay it upon the stains.

XIV. *Another way.*

Mix white Starch and Water together, making it into a Paste ; with this cover the Stains as thick as a Shilling or Half Crown, and leave it on till next day : then rub it off as you do dry dirt ; and the Stains will be vanished.

XV. *To take all Spots of Ink out of Linnen or Woollen.*

Squeeze Juice of Limons upon the Stain, which rub in very well, and being dry, repeat this three or four times ; and then wash it with fair Water, and the Ink or Iron molds will be vanished.

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C H A P. XXIII.

Dying of Paper, Parchment, and Leather, &c.

I. *TO make Paper waved like Marble.*

Take divers Oiled colours, put them severally in drops upon water, and stir the water lightly : then wet the Paper (being of some thickness) with it, and it will be waved like Marble ; dry it in the Sun.

II. *To write golden Letters on Paper or Parchment.*

This may be done by the ninth, thirteenth and sixteenth Sections of the twenty seventh Chapter of the third Book : or write with Vermilion ground with Gum Armoniack, ground with glair of Eggs, and it will be like Gold.

III. *To take out blots, or make black Letters vanish in Paper or Parchment.*

This may be done with Alum-water ; or with *Aqua fortis* mixed with common water.

IV. *To make Silver Letters in Paper or Parchment.*

Take Tin one ounce, Quick-silver two ounces, mix and melt them, and grind them with Gum-water.

V. *To write with Green Ink.*

Take Verdigrise, Litharge, Quick-silver, of each a sufficient quantity, grind and mingle them with Urine, and it will be a glorious green, like an Emerald, to write or paint with.

Or thus, Grind Juice of Rue and Verdigrise with a little Saffron together ; and when you would write with it, mix it with Gum-water. *Or thus,* Dissolve Verdigrise in Vinegar, strain it ; then grind it with common water, and a little Hony, dry it ; then grind it again with Gum water, and it is done.

VI. *To write on Paper or Parchment with Blue Ink.*

Grind Blue with Honey, then temper it with glair of Eggs, or Gum-water made of Ising-glass.

VII. *To dye Skins Blue.*

Take Berries of Elder, or Drawf-elder, first boil them, then sinear and wash the Skins therewith, and wring them forth : then boil the Berries as before, in the dissolution.

lution of Alum-water, and wet the Skins in the same water once or twice, dry them, and they will be very Blue.

VIII. *To dye Skins into a Reddish Colour.*

First wash the Skin in water, and wring it well: then wet it with the solution of Tartar and Bay-salt in fair water, and wring it again: to the former dissolution add Ashes of Crab-shells, and rub the Skin very well therewith, then wash with common water, and wring them out: then wash them with tincture of Madder, in the solution of Tartar, Alum, and the aforesaid Ashes; and after (if not red enough) with the tincture of Brasil.

IX. *Another way to dye them Red.*

Wash the Skins, and lay them in galls for two hours, wring them out, and dip them into a colour made with *Ligustrum*, Alum and Verdigrise in water. Lastly, twice dye them with Brasil boiled with Lye.

X. *Another way to dye them Blue.*

Take the best Indico, and steep it in Urine a day, then boil it with Alum, and it will be good. Or, temper the Indico with Red Wine, and wash the Skins therewith.

XI. *To dye Skins purple.*

Take Roch-alum, dissolve it in warm water, wet the Skins therewith, drying them again; then take rasped Brazil, boil it in water well, then let it cool; do thus thrice: this done, rub the dye over the Skins with your hand,, which being dry polish.

XII. *To dye Skins of a sad green.*

Take the filings of Iron and Sal-Armoniack, of each alike, steep them in Urine till they be soft, with which besmear the Skin, being stretched out, drying it in the shade, the colour will penetrate and be green on both sides.

XIII. *To dye Skins of a pure Skie Colour.*

For each Skin take Indico an ounce, put it into boiling water, let it stand one night, then warm it a little, and with a brush-pencil besmear the Skin twice over.

XIV. *To dye Skins of a pure Yellow.*

Take fine Aloes one ounce, Linseed Oil two pound, dissolve or melt them, then strain it; besmearing the Skins therewith; being dry, varnish them over.

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XV. To dye Skins Green.

Take Sap-green, Alum-water, of each a sufficient quantity; mix and boil them a little: if you would have the colour darker, add a little Indico.

XVI. To dye Skins Yellow.

Infuse Woad in Vinegar, in which boil a little Alum: Or thus, having dyed them Green by the fifteenth Section, dip them in decoction of Privet-berries, and Saffron, and Alum-water.

XVII. To dye them of an Orange Colour.

Boil Fustick-berries in Alum-water: but for a deep Orange, use Turmeric-root.

XVIII. A liquor to gild Skins, Metals, or Glass.

Take Linseed Oil three pound, boil it in a glazed Vessel till it burns a Feather being put into it, then put to it Pitch, Rosin, dry Varnish, or Gum-Sandrach, of each eight ounces, Aloes Hepatica four ounces; put all in powder into the Oil, and stir them with a stick, the fire being a little encreased: if the liquor is too clear or bright, you may add an ounce or two more of Aloes Soccatrine, and diminish the Varnish, so the liquor will be darker, and more like Gold. Being boiled, take it, and strain it, and keep it in a Glass for use: which use with a Pencil.

Other staining Colours.

XIX. To make a fine Blue staining water.

Make a weak *Lixivium* of Pot-ashes, or take Lime-water, put into it a sufficient quantity of Florey, and dissolve therein a little Alum, and stir it well over the fire; then take it off, and cast therein Wood Ashes, so will you have a fine Blue.

XX. A weaker Blue staining water.

Take water a sufficient quantity, dissolve therein a sufficient quantity of Florey blue, and a little Alum; so will it be of a fainter colour than the former.

XXI. A staining Blue water, weaker than the latter.

Take pure Well-water a quart: two shells full of Florey blue; mix them well together, and lay them on thin: This is the faintest of all the three.

XXII. A deep green staining water.

Take Juice of the greenest Worts half a pint, strain it through a Cloth; and dissolve therein a sufficient quantity of purified Verdigrise: mix them well together, and
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it will be a good colour. *How to purifie Verdigrise see in my Doron, lib. 3. cap. 6. Sect. 13. §. 2. being so prepared, one ounce will be worth ten of that unprepared.*

XXIII. Another green staining Colour.

First stain the Leather, Parchment, or Paper with a Blue, and let it dry : then lay thereon a yellow staining colour, so will the green be much the better.

XXIV. To make a light staining green colour.

Take a pint of Wort made of Malt : and mix therewith a shell full of Florey, stirring them well together : first stain with this, then upon this staining, lay yellow, till it grows green : the more of your yellow staining liquor you lay on, the better will your green be.

C H A P. XXIV.

Dying of Wood, Horns and Bones, &c.

I. TO dye Elder, Box, Mulberry-tree, Pear-tree, Nut-tree of the colour of Ebony.

Steep the Wood in Alum-water three or four days, then boil it in common Oil, with a little Roman Vitriol and Sulphur.

Where note, the longer you boil the Wood, the blacker it will be, but too long makes it brittle.

II. To dye Bones green.

Boil the Bones in Alum-water, then take them out, dry them and scrape them, then boil them in Lime-water with a little Verdigrise.

III. To dye Wood like Ebony, according to Glauber.

Distil an *Aqua fortis* of Salt-peter and Vitriol, and therewith besmear the Wood, as oft as you see occasion.

IV. To make Horns black.

Vitriol dissolved in Vinegar and Spirit of Wine will make Horns black : so the Snow-white Calx of Silver in fair water.

V. To make Bones white.

They are strangely made white by boiling with water and Lime ; continually scumming of it.

VI. To dye Bones green.

Take white Wine Vinegar a quart, filings of Copper, Verdi-

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Chap. 24. *Of Dying Wood, Horns, &c.* 473

Verdigrise, of each three ounces ; Rue bruised an handful ; mix them, and put the Bones therein for fifteen days.

VII. *To dye Wood, Horns, or Bones red.*

First boil them in Alum-water, then put them into tincture of Brazil in Alum-water for two or three Weeks : or into tincture of Brazil in Milk.

VIII. *To dye them Blue.*

Having first boiled them in Alum-water, then put them into the dissolution of Indico in Urine.

IX. *To dye them green like Emeralds.*

Take *Aqua fortis*, and put as much filings of Copper into it, as it will dissolve ; then put the Wood, Horns, or Bones therein for a Night.

X. *To dye Bristles and Feathers.*

Boil them in Alum-water, and after, while they are warm, put them into tincture of Saffron, if you would have them yellow : or Juice of Elder-berries, if blue : or in tincture of Verdigrise, if green.

XI. *To dye an Azure Colour.*

Take Roch-alum, filings of Brasse, of each two ounces ; Fish-glew half an ounce, Vinegar, or fair water a pint, boil it to the consumption of the half.

XII. *To soften Ivory and Bones.*

Lay them twelve hours in *Aqua fortis*, then three days in the Juice of Beets, and they will be tender, and you may make of them what you will : *To harden them again* ; lay them in strong White Wine Vinegar.

XIII. *To make Horns soft.*

Take Urine a Month old, Quick-lime one pound, calcined Tartar half a pound, Tartar crude, Salt, of each four ounces ; mix and boil all together, then strain it twice or thrice, in which put the horns for eight days, and they will be soft.

XIV. *Another way to make them soft.*

Take ashes, of which glass is made, Quick-lime, of each a pound ; water a sufficient quantity, boil them till one third part is consumed, then put a feather into it, if the feather peel, it is sodden enough, if not, boil it longer, then clarify it, and put it out, into which put filings of Horn for two days ; anoint your hand with Oil, and work the Horns as it were Paste, then make it into what fashion you please.

XV. *Ano-*

XV. *Another way to soften Horns.*

Take Juice of Marubium, Alexanders, Yarrow, Celandine and Radish roots, with strong Vinegar, mix them, into which put Horns, and digest seven days in Horfe-dung, then work them as before.

XVI. *To cast Horns in a mould, like as Lead.*

Make a Lixivium of calcined Tartar and Quick-lime, into which put filings or scrapings of Horn, boil them well together, and they will be as it were Pap, tinge it of the colour you would have it, and then you may cast it in a mould, and make thereof what fashioned things you please.

XVII. *To make Ivory white.*

If Ivory be yellow, spotted or coloured, lay it in Quick-lime, pour a little water over it, letting it lye twenty four hours, and it will be fair and white.

XVIII. *To dye Bones black.*

Take Lytharge, Quick-lime, *ana* two pounds : Water *q. s.* mix, and put in your Bones, and stir with a stick till they boil a pace : then take it off the fire, and stir till all is cold, and the Bones will be very black.

C H A P. XXV.

The CONCLUSION.

I. **T**O enumerate all the great variety of Dyes or Colours, or offer at an Essay to reduce them to a certain method, as it is a labour needless, so it is as altogether impossible, there being infinite Colours to be produced, for which (as yet) we have no certain, known, or real name.

II. And out of what we have already enumerated in this Book, the ingenious (if they please) shall find (by little Practice and Experience) such great variety to be apparent, that should we express the number though but in a very low or mean degree, we could not but be exposed in censure to an Hyperbole, even of the highest.

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deep or high; the latter, all of them paler than each other.

IV. And according to the variety of Colours the Matter is of, before it is put into the Dye, such new variety also shall you have again when it comes out; not according to what the Colour naturally gives, but another clean contrary to what you (although an Artist) may expect.

V. For if strange Colours be dipt into Dyes not natural to them, they produce a forced colour of a new texture, such as cannot possibly be preconceived by the mind of Man, although long and continued experience might much help in that case.

VI. And if such variety may be produced by any one of those single Colours; what number in reason might be the ultimate of any two or three or more of them, being complicate or compounded?

VII. Now if such great numbers or varieties may be produced, 1. By any one single Colour. 2. By being complicate; how should we (without a certain and determinate limitation, by denomination, or name) ever order such confused, unknown, various, and undeterminate Species of things, in any pleasant intelligible method?

VIII. Since therefore that the matter (as yet) appears not only hard, but also impossible; we shall commend what we have done to the ingenuity of the industrious: and desire that favour from the Experienced, with love to correct our Errors; which act of kindness will not only be a future Obligation to the Author, but also enforce Posterity to acknowledge the same.

Explicit Liber Sextus.

274

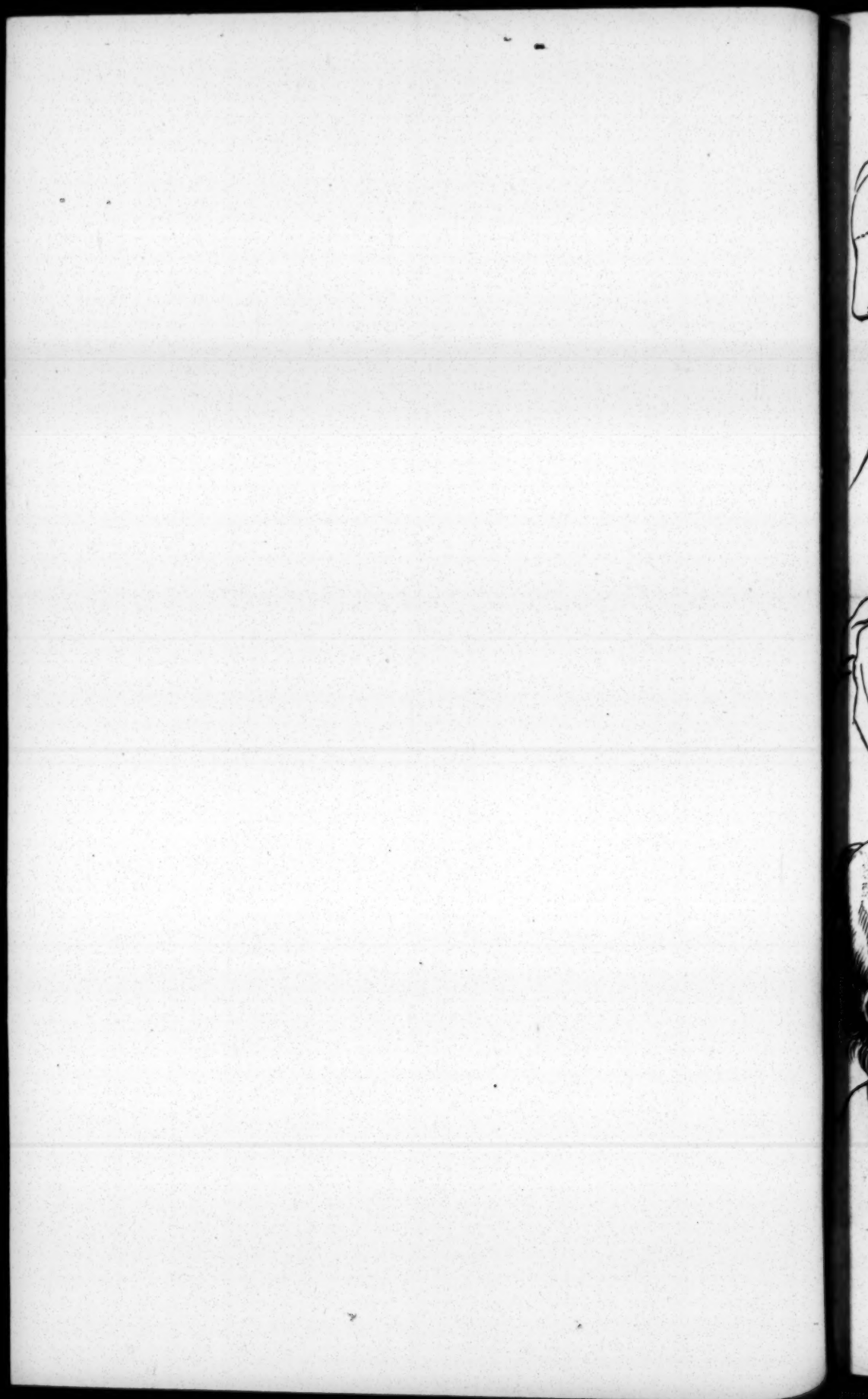
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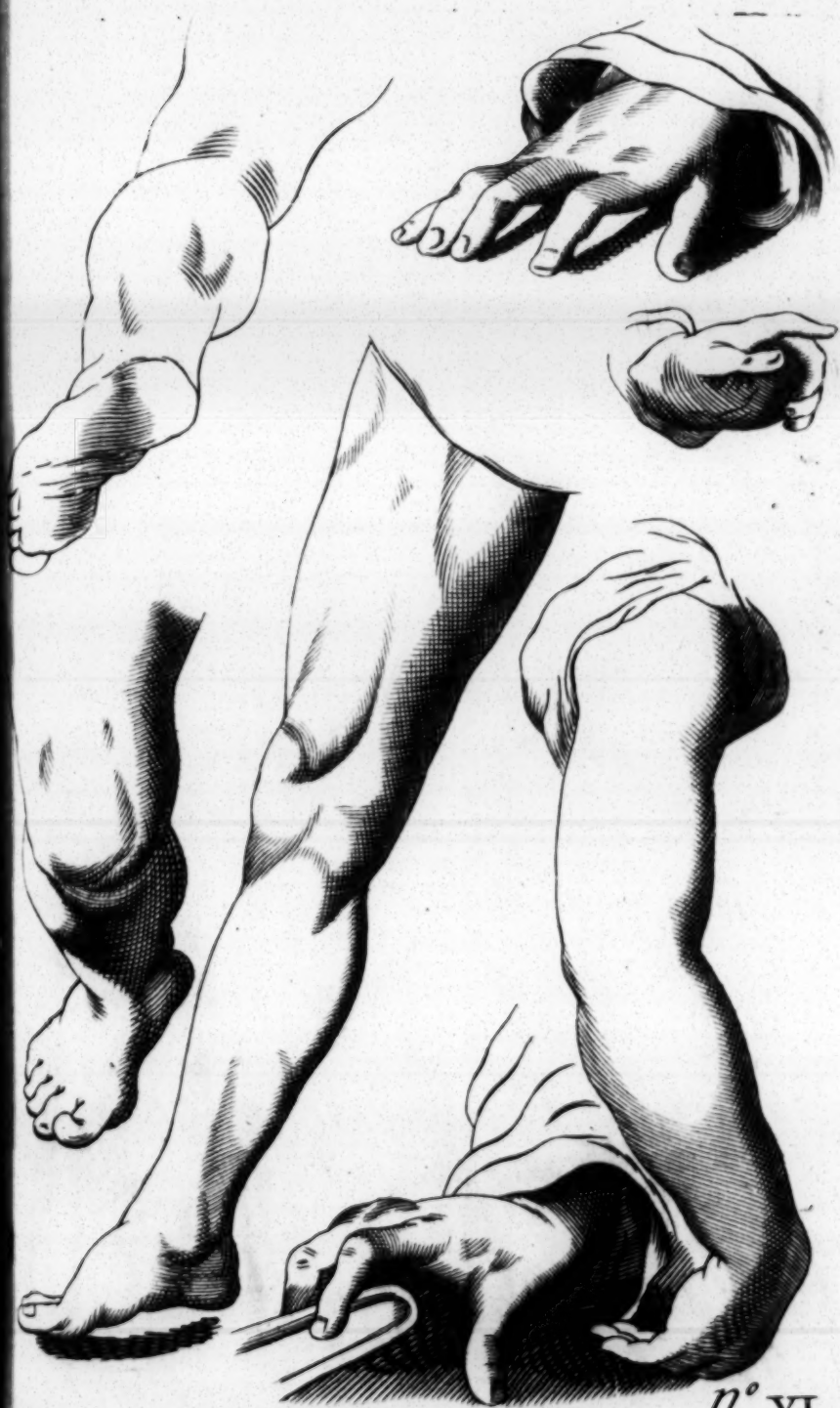
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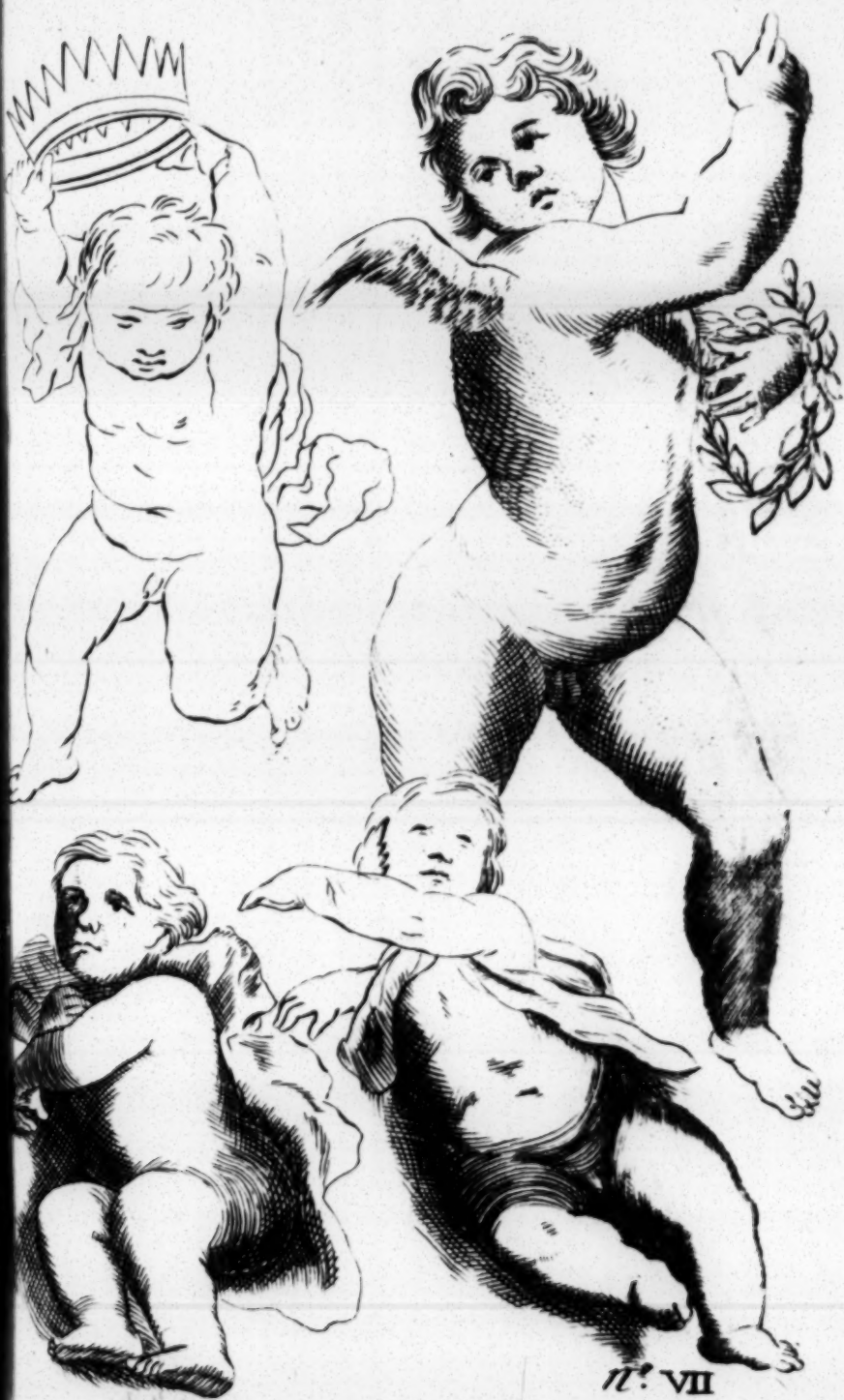
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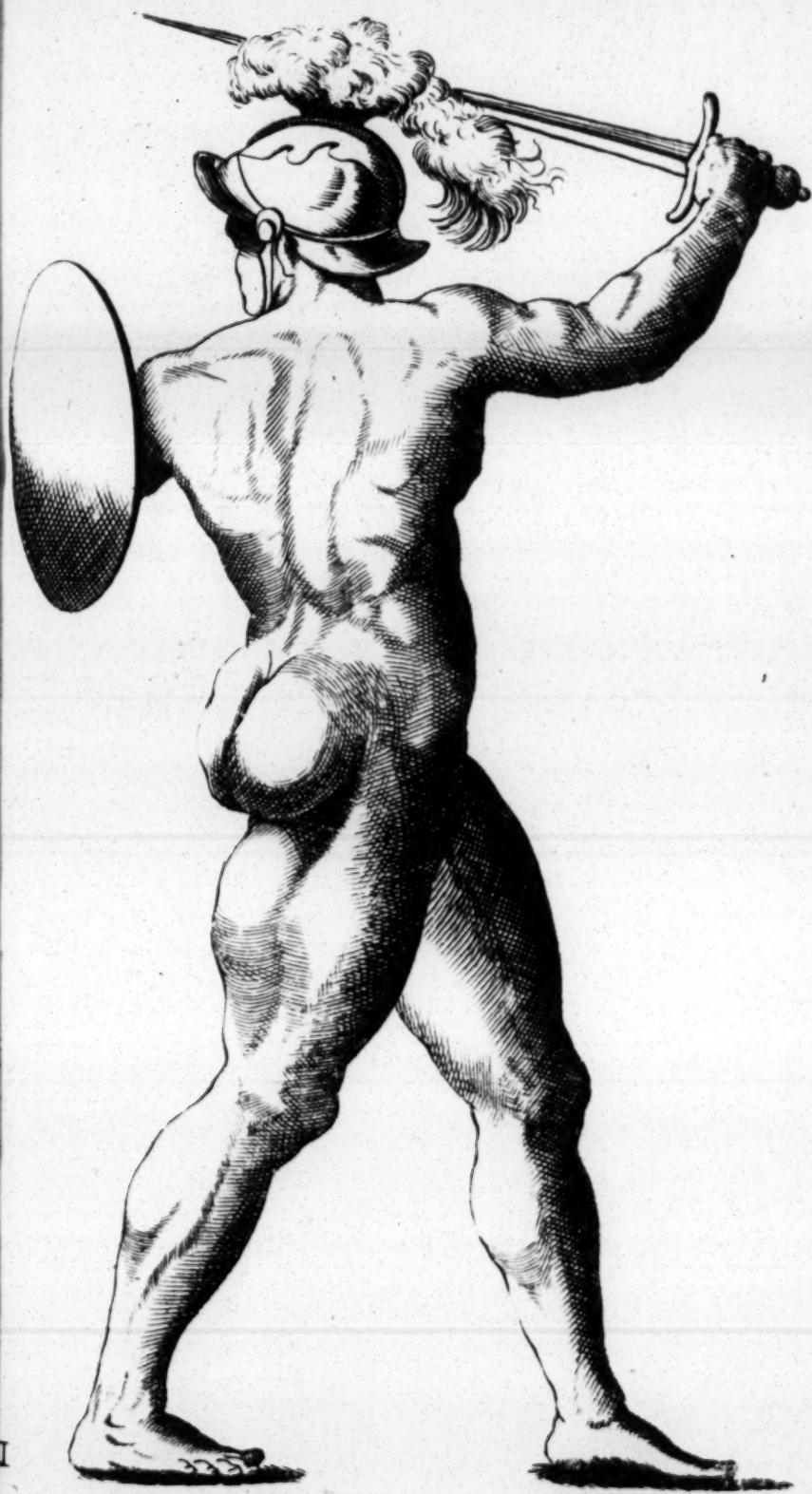
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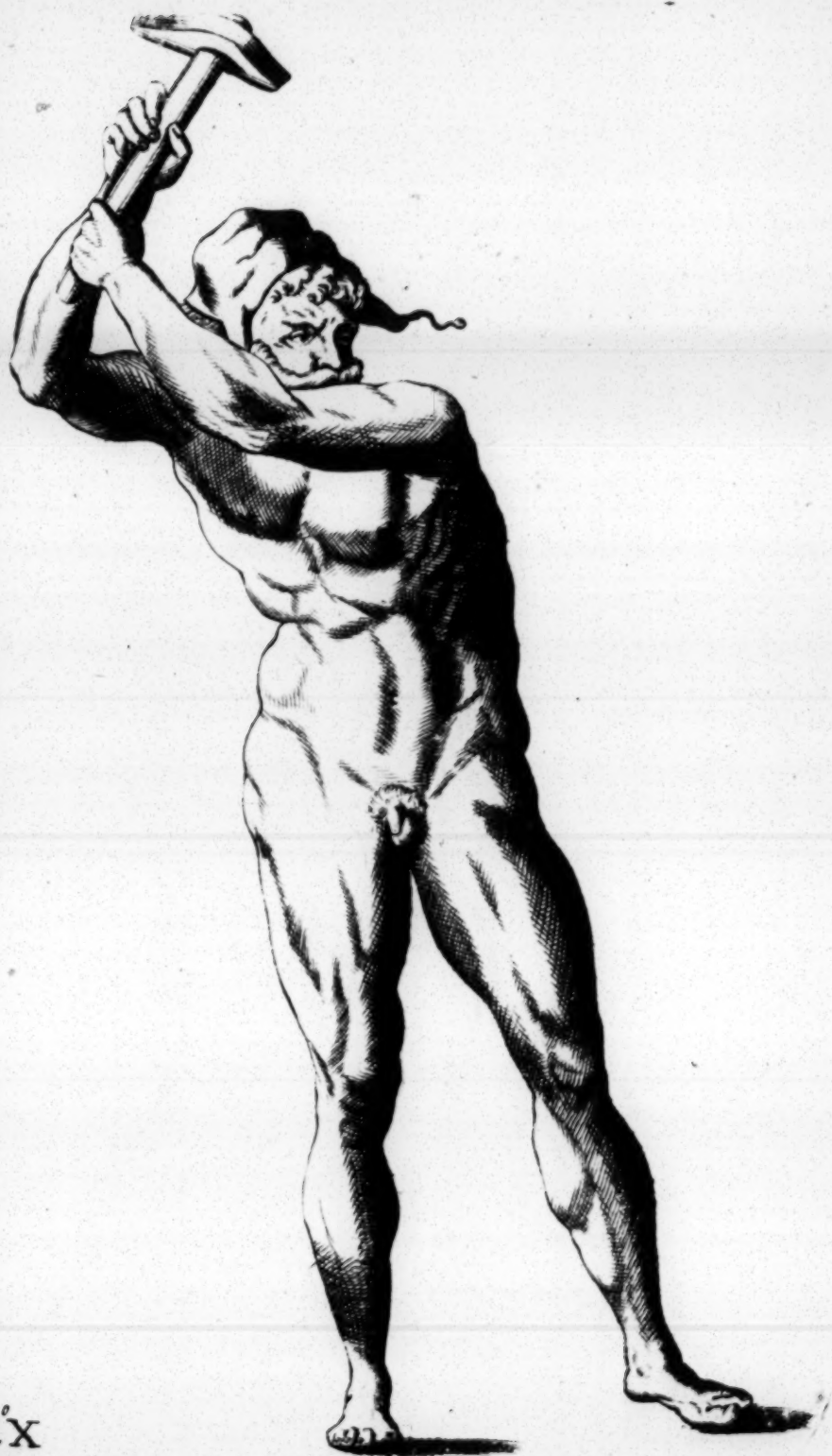




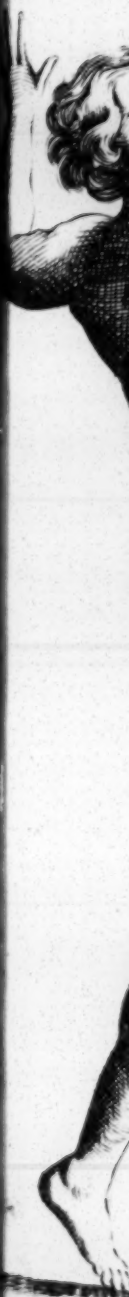


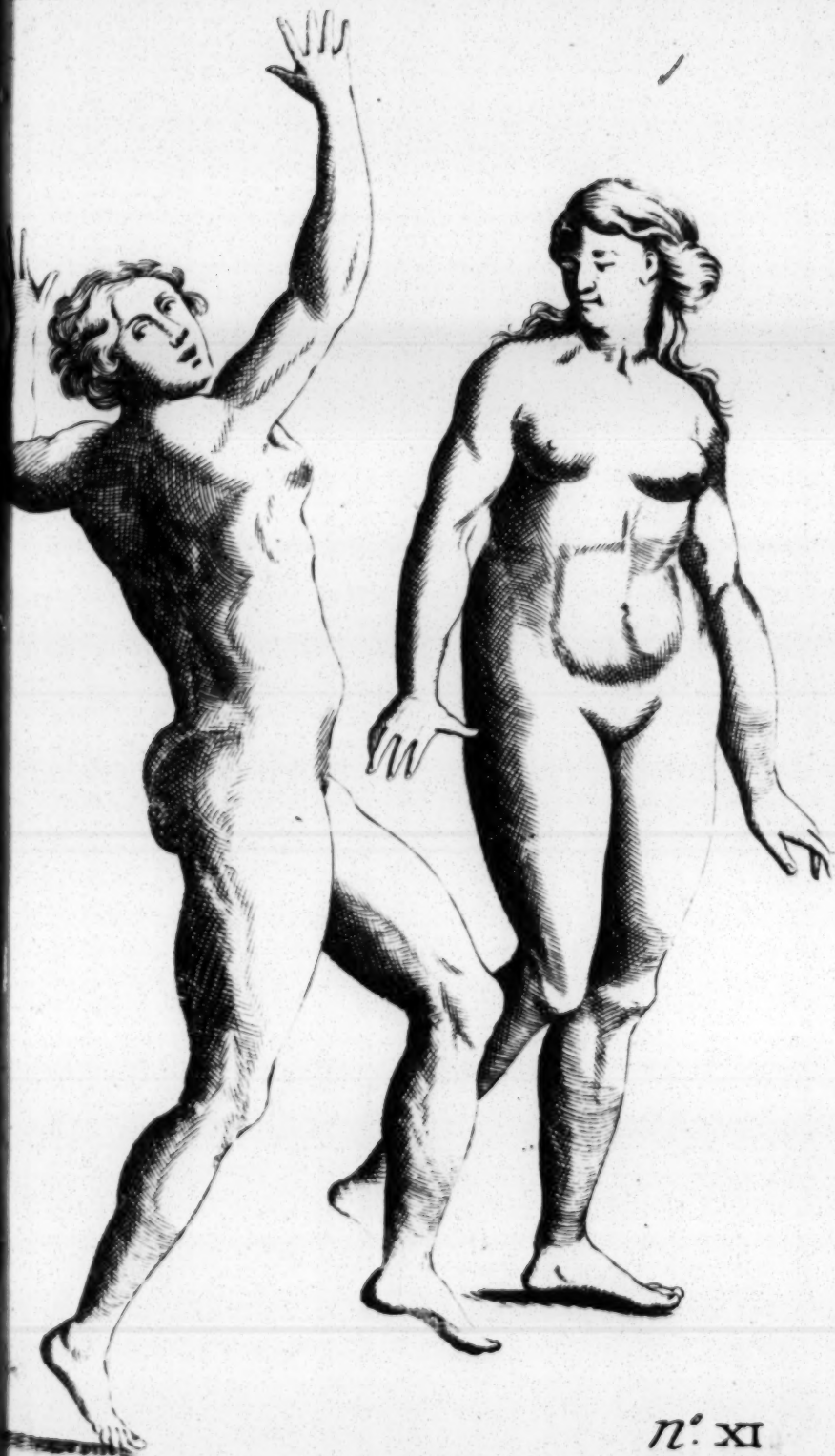


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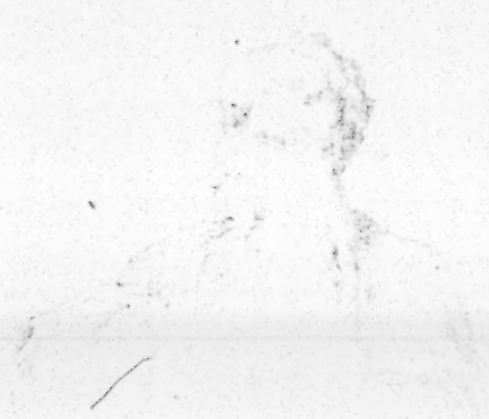


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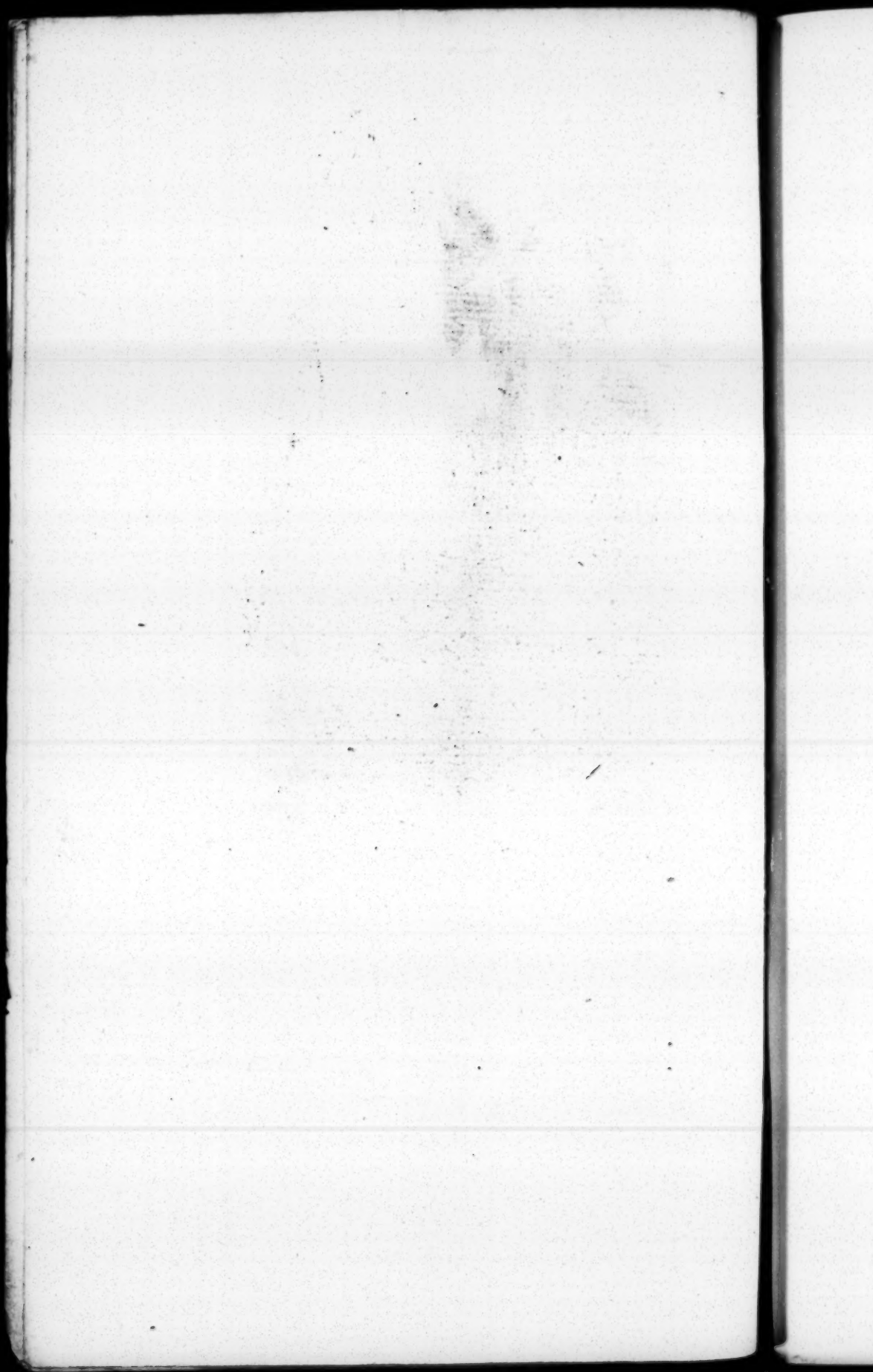
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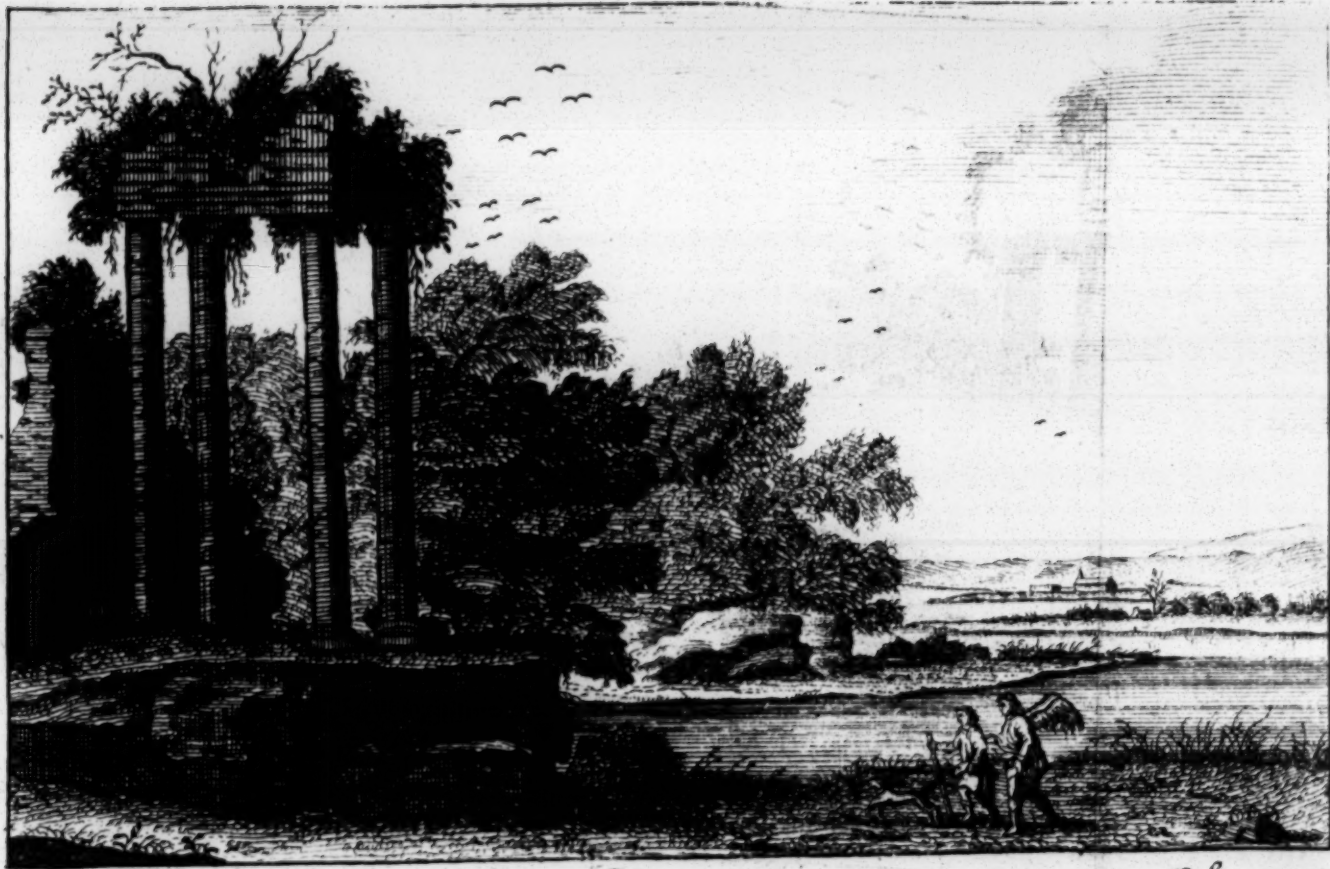
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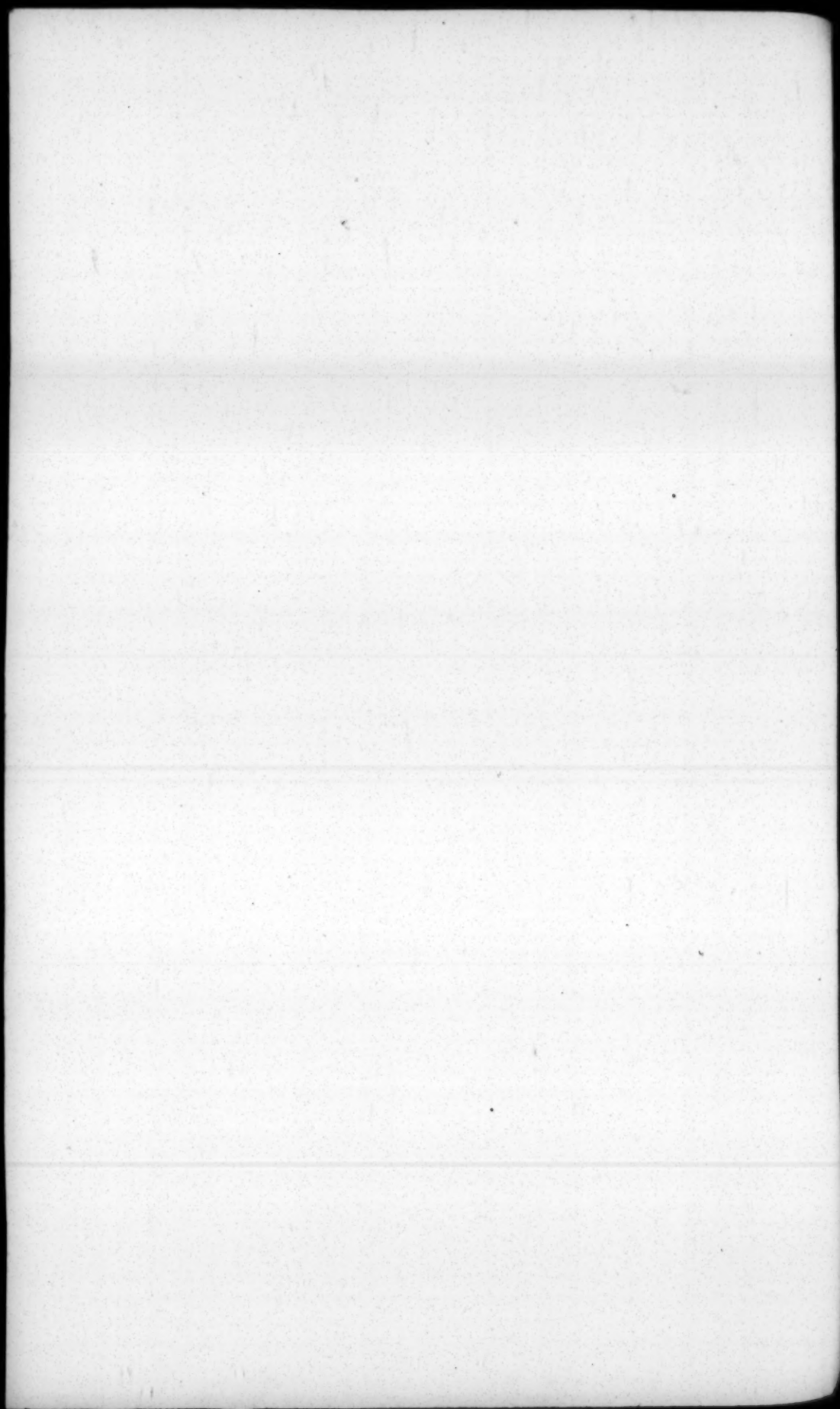


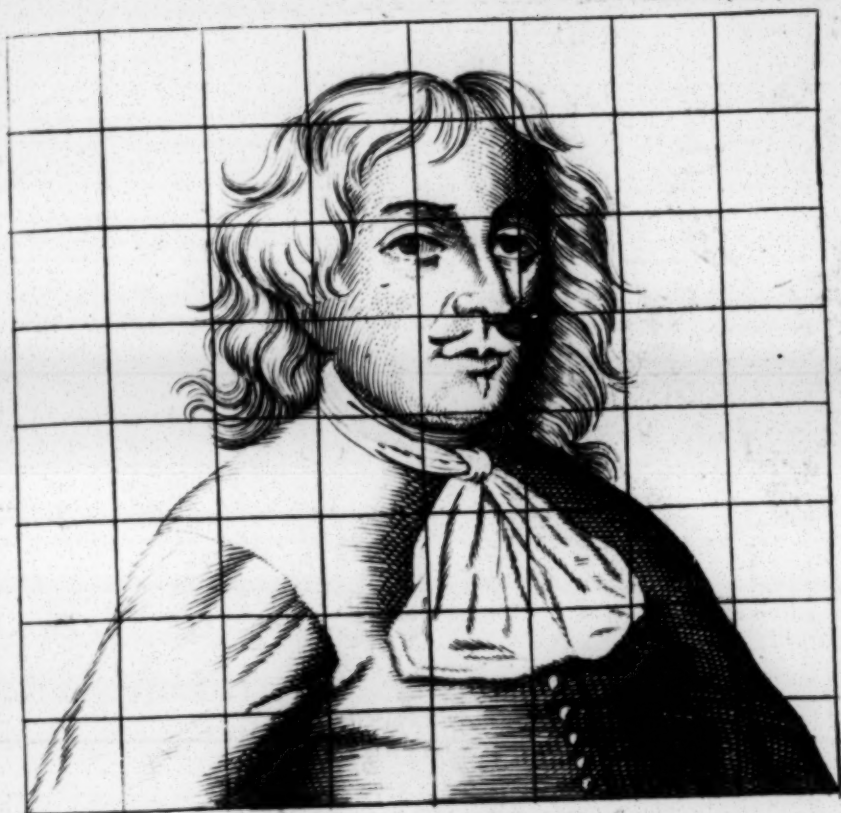
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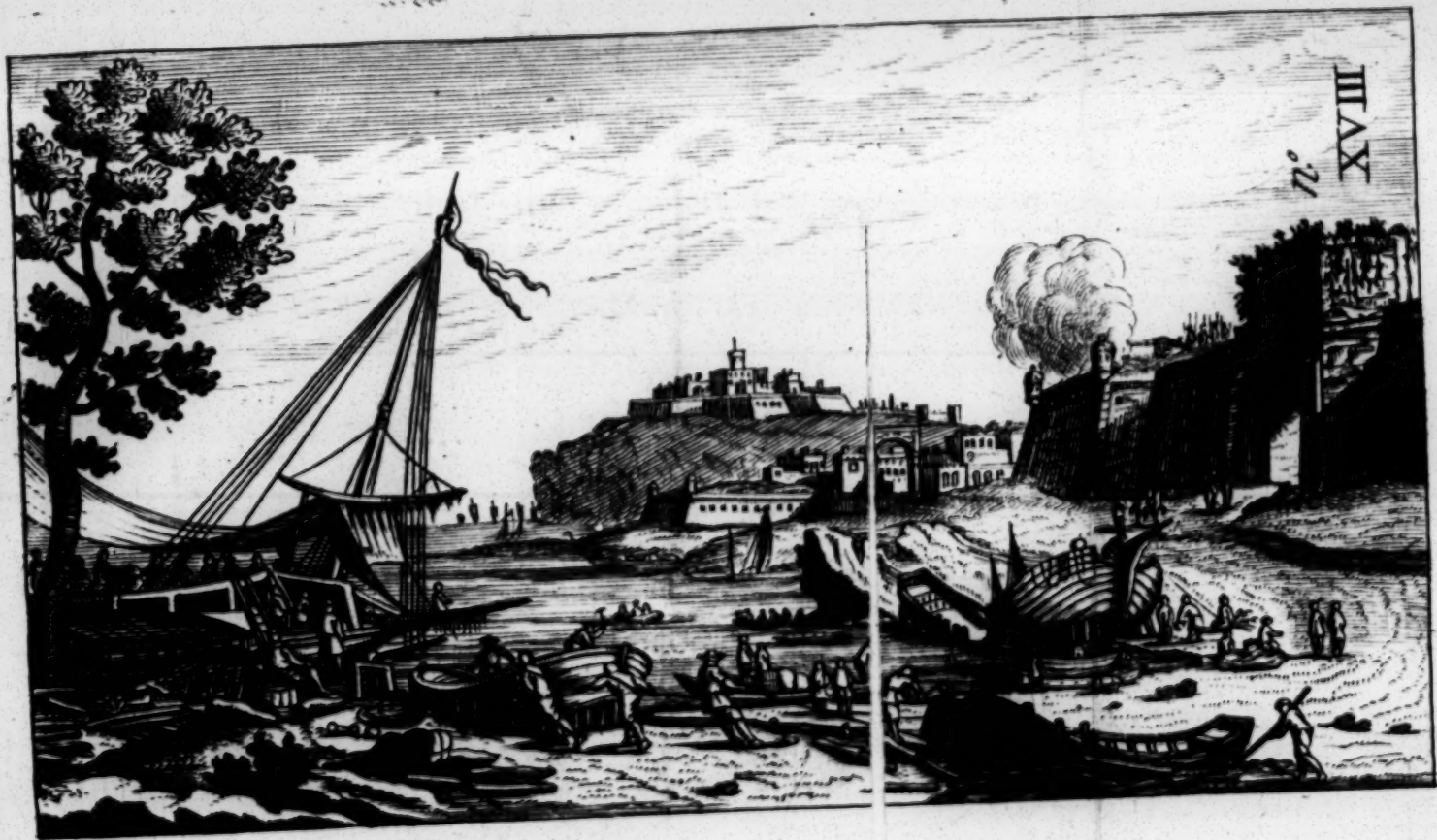
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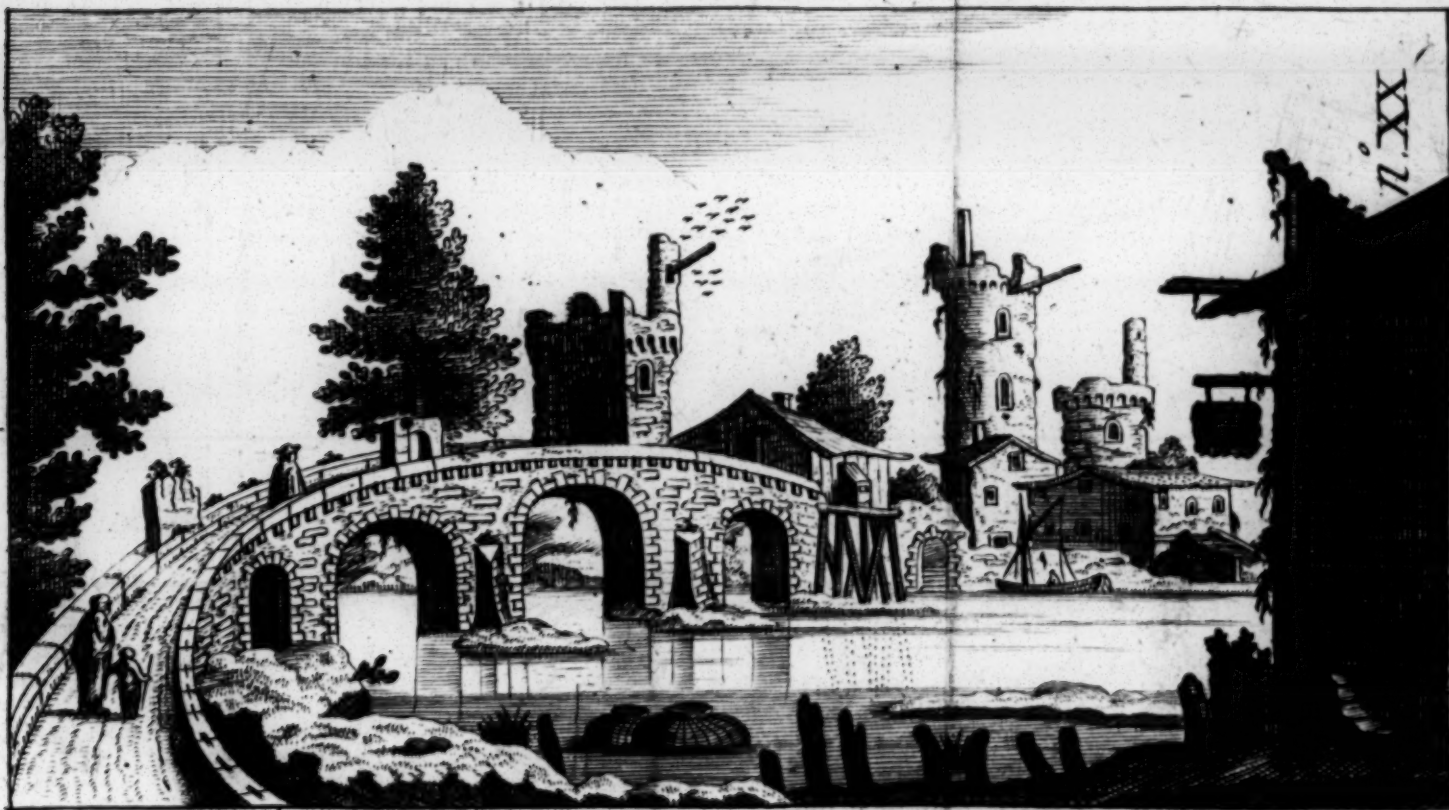
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